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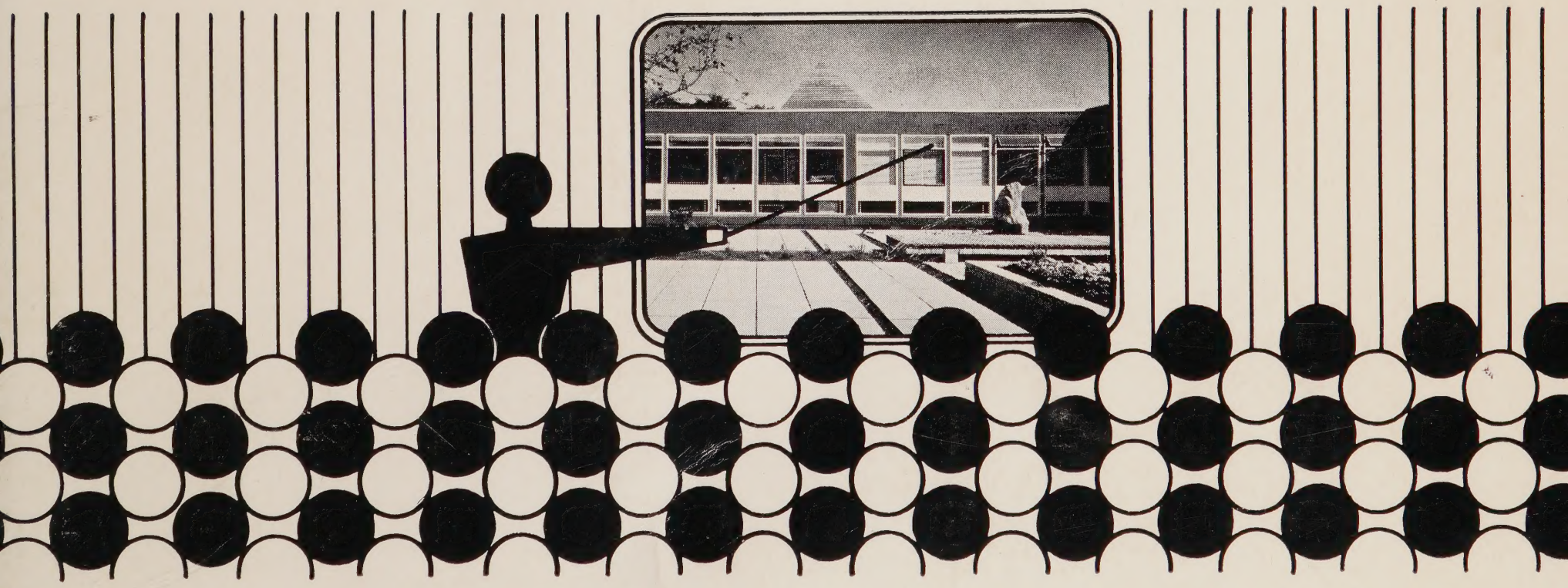

Scottish Hospital Centre
August 1967

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Collected Conference Reports 1966

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Scottish Hospital Centre

CONTENTS

1	Ward upgrading I	7
2	Planning implications in the control of hospital infection	9
3	Bed usage	13
4	Residential accommodation for hospital medical staff	21
5	Fire precautions in hospital planning	27
6	Disposal arrangements in hospitals	31
7	The patient's point of view	35
8	Libraries in hospitals	41
9	Prescribing and administration of drugs in hospital	45
10	Links between hospital, local authority and general practitioner services	51
11	Ward upgrading II	57

PREFACE

The Scottish Hospital Centre was opened in December 1965 and during 1966 a series of conference and discussion sessions were held. At these a topic of current interest was reviewed by authoritative speakers and discussed by an audience of about 50 representing many aspects of the service. These occasions proved to be popular and in every case there was a stimulating exchange of views. Only the relatively small size of the conference room limited the numbers attending.

Eleven topics were reviewed and at each session the chair was taken by a member of the Council of Management. There were 56 speakers during the year and the list, at page ~~000~~ 4, indicates the wide range of interests represented. Records of the meetings were prepared by the staff of the Centre and these have been collected into a single publication so that the information can be available in a compact form, and in the hope that the stimulus of such interdisciplinary discussions will be sustained.

July, 1967.

DR. J. K. HUNTER
Director

CHAIRMEN

Mr. R. E. C. Johnson

Lady Baird
(on two occasions)

Dr. C. Bainbridge

Dr. J. H. F. Brotherston
(on two occasions)

Professor W. I. Card

Mr. E. U. E. Elliott-Binns

Mr. J. K. Johnston

Mr. R. A. Raffan

Mrs. C. J. Tudhope

MAIN SPEAKERS

Ward upgrading I—January 1966

Mr. A. R. H. Bott, Senior Architect, Scottish Hospital Centre.
Mr. F. Daly, Work Study Officer, Scottish Hospital Centre.
Dr. J. L. Graham, Medical Officer, Scottish Hospital Centre.
Miss E. McNaught, Nursing Officer, Scottish Hospital Centre.
Mr. T. R. Scott, Partner, Messrs. Keppie, Henderson and Partners, Architects.
Mr. A. Wotherspoon, Superintendent Engineer, Scottish Development Department.

Planning implications in the control of hospital infection—February 1966

Dr. F. D. Beddard, Senior Administrative Medical Officer, North-Eastern Regional Hospital Board.
Dr. J. Bowie, Senior Lecturer, Department of Bacteriology, University of Edinburgh.
Professor D. Douglas, Department of Surgery, Queen's College, Dundee.
Mr. J. Holt, Regional Architect, South-Eastern Regional Hospital Board.
Mr. D. Mackenzie, Engineer, Messrs. Steensen, Varming and Mulcahy.
Miss M. Parker, Assistant Matron, The Middlesex Hospital, London.

Bed usage—March 1966

Sir James Fraser, Bt., Department of Clinical Surgery, University of Edinburgh; Consultant Surgeon, Royal Infirmary of Edinburgh.
Mr. J. Garden, Consultant Orthopaedic Surgeon, Law Hospital, Carluke.
Dr. M. A. Heasman, Principal Medical Officer, Research and Intelligence Unit, Scottish Home and Health Department.
Dr. R. F. L. Logan, Reader, Department of Social and Preventive Medicine,University of Manchester.
Dr. J. S. Meredith, Medical Research Officer, Scottish Hospital Centre, Edinburgh.
Dr. G. H. Scoular, Area Medical Superintendent, Ayrshire.

Residential accommodation for hospital medical staff—April 1966

Mr. C. E. Barth, Senior Registrar (Surgery), Western Infirmary, Glasgow.
Mr. D. I. Black, Senior Architect (Housing), Scottish Development Department.
Dr. D. T. Braid, Anaesthetist, Royal Infirmary of Edinburgh.
Dr. D. W. Dingwall, recently Senior House Officer, Victoria Hospital, Kirkcaldy.
Professor I. Donald, Department of Obstetrics and Gynaecology, University of Glasgow.
Dr. J. L. Graham, Medical Officer, Scottish Hospital Centre.
Dr. F. Knight, Registrar (Psychiatry), Craig House, Edinburgh.
Mr. W. A. Stevens, Secretary, Northern Regional Hospital Board.

Fire precautions in hospital planning—May 1966

Mr. R. W. Dunn, Senior Fire Prevention Officer, South-Eastern Area Fire Brigade.

Mr. N. R. J. Johnston, Architect, Messrs. Boswell, Mitchell and Johnston.
Mr. J. Pollock, Senior Architect, Scottish Development Department.
Mr. J. Robin, Senior Architect (Hospitals Group), Scottish Development Department.
Mr. E. L. Taylor, Regional Engineer, Eastern Regional Hospital Board.

Disposal arrangements in hospitals—June 1966

Miss M. Bourne, Matron, Glasgow Royal Infirmary.
Mr. W. A. Brown, Principal Assistant Secretary, Western Regional Hospital Board.
Dr. V. G. Cattrell, Medical Physicist, Royal Infirmary of Edinburgh.
Mr. W. Carmichael, Deputy Manager, Edinburgh Corporation Cleansing Department.
Dr. J. A. N. Emslie, Bacteriologist, Middlesborough.
Mr. A. Wotherspoon, Superintendent Engineer, Scottish Development Department.

The patient's point of view—September 1966

Dr. Margaret Gilmore, Department of Nursing Studies, University of Edinburgh.
Miss J. U. Himsworth, Health Visitor, Midlothian.
Dr. R. M. McGregor, General Practitioner, Hawick.
Mrs. W. Raphael, Industrial Psychologist and Research Consultant to Royal College of Nursing.

Libraries in hospitals—October 1966

Mr. J. F. G. Blair, Consultant Surgeon, Perth Royal Infirmary.
Miss M. MacDonald, Director of Nurse Training, Western General Hospital, Edinburgh.
Mr. A. A. McIver, Secretary and Treasurer, Board of Management for Glasgow Royal Infirmary and Associated Hospitals.
Mrs. W. M. Partington, Librarian, Queen Elizabeth II Hospital, Welwyn Garden City.
Mr. R. A. Stuart, Senior Lecturer, College of Librarianship, Wales.

Prescribing and administration of drugs in hospital—October 1966

Mr. G. Calder, Pharmacist, Aberdeen Royal Infirmary.
Miss H. B. Caie, Principal Tutor, Aberdeen Royal Infirmary.
Dr. J. Crooks, Reader, Department of Materia Medica and Therapeutics, University of Aberdeen.
Dr. R. D. Weir, Department of Social Welfare, University of Aberdeen.

Links between hospital, local authority and general practitioner services—November 1966

Mr. E. U. E. Elliott-Binns, Under-Secretary, Scottish Home and Health Department.
Dr. G. D. Forwell, Senior Administrative Medical Officer, Eastern Regional Hospital Board.
Dr. J. E. Miller, General Practitioner, Glasgow.
Dr. G. Riddell, Medical Officer of Health, Fife.

Ward upgrading II—December 1966

Mr. A. R. H. Bott, Senior Architect, Scottish Hospital Centre.
Dr. J. L. Graham, Medical Officer, Scottish Hospital Centre.
Miss E. McNaught, Nursing Officer, Scottish Hospital Centre.

OPENING SPEAKERS AT DISCUSSION SESSIONS

Dr. J. H. F. Brotherston, Chief Medical Officer, Scottish Home and Health Department. (On two occasions).

Mr. J. Deuchars, Regional Architect, Eastern Regional Hospital Board, Dundee.

Dr. A. Doig, Consultant Physician, Edinburgh.

Professor J. Forfar, Department of Child Life and Health, University of Edinburgh.

Dr. G. D. Forwell, Senior Administrative Medical Officer, Eastern Regional Hospital Board, Dundee.

Dr. M. D. W. Low, Assistant Dean (Planning), Faculty of Medicine, University of Edinburgh.

Councillor Mrs. R. Nealon, Member, South-Eastern Regional Hospital Board.

Mr. T. R. Scott, Architect, Messrs. Keppie, Henderson and Partners, Architects, Glasgow.

Dr. H. G. Smylie, Consultant Bacteriologist, Aberdeen.

Professor J. Walker, Department of Obstetrics and Gynaecology, Queens College, Dundee.

Professor Sir Edward Wayne, Department of Medicine, University of Glasgow.

WARD UPGRADING

Although substantial progress has been made with the planning and building of new accomodation, large numbers of old wards will remain in use for many years. Designed for a very different pattern of work, these wards are generally inconvenient to run and unacceptable to patients who are becoming increasingly conscious of the value of greater privacy than can be achieved in the "open" wards designed many years ago.

The conferences reported at pages 57 to 60 reviewed this subject. The survey work begun by the Scottish Home and Health department and continued by the Scottish Hospital Centre is aimed at producing recommendations and a report based on detailed studies will be published.

Lady Baird, Vice-Chairman of the Council of Management of the Scottish Hospital Centre, took the Chair at this meeting. The audience was composed of administrators, architects, doctors, engineers and nurses directly concerned with this subject.

A research team from the Scottish Hospital Centre engaged in a review of upgrading or modernising older ward units explained the background against which the survey was being done. The point of view of the private architect was presented by Mr. T. R. Scott (Messrs. Keppie, Henderson and Partners) and that of the engineer by Mr. A. Wotherspoon (Scottish Home and Health Department).

Mr. F. Daly and **Dr. J. L. Graham** spoke on the quantitative and qualitative problems involved. Taking into account only those old wards which had no likelihood of replacement within the next five years, a conservative calculation from a survey done by the Scottish Home and Health Department in 1964, showed that in Scotland at least 1½ million patients would be treated in them during that period. It was noted that older types of ward represented a remarkable variety of shapes, sizes, heights and widths; that most were extremely inconvenient from the point of view of nursing staff —the group most directly affected by the way the various bed areas and ancillary rooms are related one to another—and that such open wards were flexible in use on only a quantitative basis, i.e. that additional beds could be squeezed in more readily.

Miss E. McNaught explained the type of survey work undertaken when the Scottish Home and Health Department Planning Note 1 "Ward Design"* was being prepared. She illustrated the main defects of older types of ward and stressed the need to define basic principles underlying the planning of either a new ward or upgrading an older unit. It was accepted that by adaptation, a fully efficient result might not be possible. It was important, however, to assess the priorities of changes proposed, especially when limited finance was available. In this general connection, it was explained how the basic cycle of nursing activities was applicable to any type of ward unit and that the accommodation to be provided or adapted should take this into account.

Mr. A. R. H. Bott presented, in diagrammatic form, outlines of a series of ward units already upgraded and explained the salient features of each. He demonstrated various ways in which the grouping of nursing ancillary rooms, bed areas and sanitary accommodation had been effected in different schemes. The efficiency of these groupings, the effect of different types of bed layout on nursing observation, and other features, including the question of nurse staffing, would be explained in more detail in the course of the study.

Mr. T. R. Scott discussed various limiting factors affecting the alteration of old ward units. He noted that for new accommodation excellent schedules of accommodation were available and made a plea that for upgrading even a single ward it would be of great value for the client to set down the functional requirements in some detail. This would avoid the project architect having to undertake an excessive amount of pre-planning on a trial and error basis. He drew attention to the value of Planning Note 1 "Ward Design" as a check list in relation to the improvement of older ward units and noted that any upgrading must represent a compromise in relation to the shape of the ward, the state of the fabric, the type of structure and the amount of money available. He noted in particular the importance of the width of the ward, the ceiling height and window spacing. In addition, it was important that the consulting engineer was brought into the scheme at an early stage as an upgrading programme may have important repercussions on general services such as the boiler house and telephone switchboard. He noted that upgrading was not easy, but with good will, it could be achieved. This type of work could provide an interesting and worthwhile challenge to the architect.

Mr. A. Wotherspoon, superintending engineer, Scottish Home and Health Department, endorsed the view that the engineer should be brought into the scheme at an early stage and that various services required consideration in relation to upgrading projects for a single ward, or more particularly, for a group of wards. He noted that, in general, single storey buildings lent themselves more readily to this type of work, and stressed that the service mains, hot and cold water and plumbing formed important elements of any upgrading scheme.

DISCUSSION

Opening the discussion, Lady Baird noted the extent of the challenge the upgrading of old ward units made to many asepcts of the hospital service. Boards had a serious problem in considering how much to invest in old buildings. The extent of the difficulties encountered, particularly by nursing staff, and the number of patients who would have to be treated in these wards for many years, lent urgency to an analysis of this question.

In discussion the main points raised were :—

1. **Schedules of Accommodation**

It was considered that a full scale schedule of

*H.M.S.O., 1963 6s.

accommodation for upgrading a ward unit was not necessary, but that a statement of function with an indication of the order of priority for various aspects of upgrading was required. From simple line drawings it might be possible to obtain a first cost estimate and an assessment of service ramifications. This would enable a cost for the job to be agreed. If, however, only a small sum was available, it was important to assess priorities. In this connection it was considered that much could be done at small cost to facilitate the nurses' work.

2. **Basic Requirements**
It was preferable to upgrade ward units to suit basic nursing work and provide greater amenity for patients than to attempt to tailor them to fit a particular specialty. It was noted that, e.g. Balkan beams were much smaller than previously, and from the point of view of management it was better to have wards which were interchangeable in use.

3. **Services**
It was noted that most wards to be upgraded were 20 or more years old and that renewal of electrical services would almost certainly be required. This would raise the cost of the scheme. A sum of perhaps £150 per bed would be necessary for this purpose. With other servicing problems (heating, plumbing, etc.) requiring a considerable level of expenditure, it might not be too much to estimate £10,000-£20,000 for renewed basic services in a ward unit.
The value of silent plumbing was noted and the possibility that good ventilation could be obtained even if rooms were placed internally. It was accepted, however, that this and also the omission in some cases of desirable features such as day rooms, related primarily to the question of cost.

4. **Cost**
It was reported that the cost per bed for schemes undertaken during the past seven years varied from about £300 to over £800 per bed. An analysis of costs would be part of the survey to be undertaken.

5. **Number of Beds**
There was a fear of losing beds. It was noted that to provide bed curtains when the distance between bed centres was inadequate tended to lead to difficulty if nursing procedures were to be undertaken at the bedside. In most cases one or more beds had been lost during upgrading; in a few instances additional beds had been made possible.

6. **Grouping of Patients**
The increasing possibility of discord within small groups of patients was mentioned, but another nursing opinion was that such groups could be easily managed. There appeared to be considerable support for the type of bed layout in which an off-centre passage hed four beds on one side and two on the other.

7. **Nurse Staffing**
The effect of upgrading on the level of nurse staffing was important and should be examined during the survey.

8. **Observation**
The question of observation was important. Some nurses maintained that they preferred to see all their patients, whether general, paediatric or geriatric, as in an open ward. Others wished to mainatin nursing observation, e.g. from a nurses' station, of only a few beds for the more seriously ill patients.

9. **Patients' Reactions**
Attention was drawn to the report prepared by the King Edward's Fund for London on an experiment in upgrading a ward in a London hospital. This included a review of patients' attitudes and in general it appeared that patients preferred to see and be seen by nurses when more seriously ill, but when less illl they valued a degree of privacy.

10. **Partitions**
The quality of partition used in rearranging the bed layout was important. Some were light in weight and gave difficulty in the fixing of attachments or services. Again, sound insulation could prove difficult.

11. **Secondary Damage**
Work in certain older buildings had caused secondary damage, e.g., to ceilings, and had led to unforseen expense.

12. **Control of Infection**
The control of air-borne infection was quoted as well as privacy in support of divided wards.

It was agreed that a further conference and discussion would be held after the survey work had been completed. The report on the second meeting is at page 57.

January, 1966.

PLANNING IMPLICATIONS IN THE CONTROL OF HOSPITAL INFECTION

Hospital infection remains one of the most intractable problems in hospital work and much has been written about it. At this conference the salient factors were reviewed and views exchanged by representatives of the main professional groups concerned—the consultant, the bacteriologist, the nurse, the architect, and the engineer.

Factors relating to hospital infection and cross-infection were discussed at a meeting at which Dr. J. H. F. Brotherston, Chief Medical Officer, Scottish Home and Health Department, and a member of the Council of Management of the Scottish Hospital Centre, took the Chair. Six speakers outlined the bacteriological background, surgical and nursing aspects, the need for more co-ordinated action at hospital level, and the contribution which might be made by engineering and architecture.

Dr. J. Bowie, Senior Lecturer, Department of Bacteriology, University of Edinburgh, reviewed the main types of infection and illustrated the clinical effects. He noted that serious infections and fatalities could result from errors in hygiene. They should not occur. Contact infection—exogenous or endogenous—and aerial transmission might result from obvious and preventable defects, but aerial spread could prove intractable. Some forms of equipment, e.g., incubators, were complex, difficult to clean, and liable to harbour infection. They could be dangerous when used for successive patients.

Dr. Bowie stressed the need to control or facilitate the movement of people, things and air according to planned routes in which, by means of air-locks and differential air pressures, the movement of air was consistently from cleaner to less clean areas in wards and operating theatre suites. He noted that definite views on such zoning were now supported by a multi-disciplinary group in Edinburgh. Drawings of a modified unit in use for tissue transplantation and of the new six-bed "Nuffield" block designed for this purpose, and now under construction, together with diagrammatic representations, were used to illustrate principles affecting traffic routes, staff changing and showering accommodation. It was noted that patients treated in isolation in highly protected units tended to miss the sounds of everyday life and this should be borne in mind at the planning stage.

The advantages of the theatre service centre concept and the pre-set trolley system were outlined and the possible extension of a service centre to provide sterile items for ward units was suggested. It was admitted that major changes in the type of uniform for operating theatre staff had not yet been achieved.

Professor Donald Douglas, Dundee, noted that for a series of patients entering hospital for operation it was not possible to predict the outcome as regards infection. Evidence was being accumulated mainly on the bacteriological side and, for example, on the effect of a patients' position on a long operating list, but much remained speculative. The absence of an experimental method limited progress as did the lack of accurate and comparable records of infection rates.

The main clinical effects of infection of wounds, cavities, respiratory and other systems were outlined and it was suggested that in recording wound infection the presence of suppuration should be the main criterion. The value of a reception area in a theatre suite where skin preparation and certain pre-operative procedures could be undertaken at the right time and in suitable accommodation was explained. The need for someone in full authority, probably the departmental sister, to control a transfer area situated between the reception/recovery zone and the "clean" corridor leading to the operating area of the suite, was stressed.

It was Professor Douglas' view as a clinician that people and not things were the chief source of surgical infections and that operating theatre discipline—which might be aided by good design—would remain of primary importance. Ward overcrowding was a serious danger to patients and the need for extra beds in "waiting" wards posed important problems in administration. He also considered that patients with primary sepsis should not be admitted to surgical wards; the design of an operating theatre suite should cater for as many ancillary staff and students as possible to be accommodated elsewhere than on the theatre floor; the dangers from unnecessary staff and visitors in ward areas should be recognised; and that while the danger from the sterilisation of routine instruments was slight, there were serious disadvantages in the over-use of operating theatres. He considered that a ratio of one theatre to 30 surgical beds would be more appropriate than the proportions suggested in current planning and that following exposure to open infection, the "resting" of theatres and possible ultra violet irradiation deserved further consideration. He would also advocate that, if possible, not more than three major operations per day should be performed in one theatre.

Miss M. Parker, Assistant Matron, the Middlesex Hospital, London, stressed that the nurses' point of view concerned practical aspects of equipment and procedures and the detailed planning of rooms. Dangers in the aggregation of surgical patients and the safety afforded by segregation had been recognised 100 years ago but very slowly accepted in practice. High risk and infective patients should not only have single rooms, but these should include a shower, W.C., and washhand basin plus an anteroom for supplies, protective clothing, and air control. The types of door were important and electrical, pedal-operated types, possibly of a plastic material for interconnected anteroom doors were a promising possibility.

On dangers from the many communal items of furniture and equipment, Miss Parker stressed the problems of bed and bedding and, in particular, the hazards from mattresses and pillows. She noted that polythene mattress envelopes might be easily torn and waterproof pillows were uncomfortable and noisy to the patient. Recognising that provision of accommodation for bed and mattress decontami-

nation and exchange carried problems of organisation and space, she considered that the known risks from present conditions justified its active consideration.

As regards items of equipment such as incubators and respirators, it was not reasonable to suppose that a nurse should dismantle and clean them in the ward dirty-utility room. It was a job for a technician to clean and sterilise such apparatus and suitable space away from ward units was required for this. When returned, they should be stored in a situation readily accessible from the points of use. Ward crockery and cutlery could best be washed and sterilised centrally. Indeed, provision for such work at ward level should be restricted to prevent extensive "washing up" at numerous points throughout the hospital.

Staff-discipline and a staff health service, both applying to other categories as well as nurses, were important. The care of sick staff should not be undertaken by those aware of the pressures of staffing needs in a particular hospital. The removal of risk of the spread of infection by staff required both education and powers of exclusion from areas of patient care. At the same time, if high standards were to be demanded, the necessary facilities must be provided for a wide range of categories of staff, including suitable changing accommodation, W.Cs., washhand basins at the right places and with antiseptic soap and disposable towels, and shower facilities. In addition, efforts should continue towards the design and provision of more suitable and sensible types of uniform.

Dr. F. D. Beddard, Senior Administrative Medical Officer, North-Eastern Regional Hospital Board, spoke on the organisation required at hospitals in dealing with hospital infection as an endemic situation. He noted that the easiest way to avoid facing up to the problem was to fail to record it. Systematic, on-going recording of infections had been advocated in reports and at discussions for several years, but more standardisation of the types of record was required. It might be necessary to look for central action to achieve co-ordination. The basis of any system of control was identification and notification.

It was important that recommendations made with a view to administrative action should be based on co-ordinated and properly controlled studies. These were essential if practical steps in relation to current resources were to be taken in acceptable priorities.

Action at a particular hospital or group should involve special responsibilities for an individual seized with the importance of investigation and control. Such an individual would require the necessary authority and a bacteriologist might well prove suitable. In addition, it was necessary for a hospital as a whole to accept that such infections represented a multi-factorial problem. The development of a hospital conscience on the subject was most important. Infection committees had tended to lapse and it might be that instead of reporting to a special committee, the control of infection officer might circulate current information to those in authority and to such groups as might take the necessary corrective action.

Mr. D. Mackenzie, Engineer with Messrs. Steensen, Varming and Mulcahy, explained that in hospital planning the engineer and the architect had to work closely together as a team and, while not magicians, they could contribute towards the reduction of cross-infection. Too often, however, when other explanations of an outbreak failed, or when they might, perhaps, be unpalatable, the ventilation system was blamed. He was confident that outside air could be efficiently filtered: the problem was concerned with organisms liberated inside the hospital. Pertinent questions were—how large were these organisms, could they be "caught", could they be "blown" with any degree of certainty in predetermined directions?

Better ventilation might be requested and, while obviously a desirable aim, it required more definition. Twenty air changes an hour was a normal requirement in an operating theatre but it should be realised that an air flow of only some 3 to 4 feet per minute was not rapid and, in addition, was affected by side currents created by more rapid activity in the room and by sources of heat. Much higher rates of change had been suggested with greatly increased rates of dilution, but these might be prohibitive in cost and create actual discomfort. He noted that gaps in evidence were largely due to a lack of sufficiently realistic experimental situations.

As regards ward units, he considered that people and not air movement were the greatest problem. While complex air patterns could be attempted, they could be readily upset by the indiscipline which was not restricted to junior grades of staff. It was important to realise that even with the provision of air locks it was difficult, if not impossible, to provide a guaranteed pattern of air movement and, at the same time, to provide a comfortable environment.

It was noted that in many instances ventilation plant was not maintained in good condition or operated as planned. This was guaranteed to bring any ventilation system into disrepute.

Mr. J. Holt, Regional Architect, South-Eastern Regional Hospital Board, drew attention to the fact that the role of the hosptial architect was now so many-sided, and his responsibilities to different people and parties so extensive, that it was difficult for him to weigh all the problems involved. His duty was to bring together several disciplines and create a three dimensional form constructed at maximum speed, at almost minimal cost and to please everybody! He could become more concerned with one of the many sub-problems at the expense of the whole problem. He was briefed by professionals or other individuals whose aims and interests might be different from those of the bulk of the users of the proposed building. It was perhaps an advantage that normal commercial pressures, such as profit and productivity, did not apply, but the interpretation of many requirements in the light of major questions such as economics, aesthetics, structural forms and other architectural criteria presented many problems.

It was important to consider whether the undoubted incidence of infection in hospitals was a problem that should dominate all other interests in planning, or should it be a sub-activity along with many others? Was it clear that by introducing massive design provisions at the expense of other things, there would be a proportionate improvement in the rate of infection? Mr. Holt advocated some

caution in designing hospitals in such a way that by attempting to solve one problem a type of discipline might be introduced which would be unacceptable in a modern society and might even lead to a loss of efficiency or make staffing an impossibility.

Experience in the commissioning of new units had shown that a change from an old building could produce unexpected reactions from both management and staff. Outspoken criticism of new high quality environments was not uncommon and designs meant to control infection, which imposed increased disciplines on hospital staff, might produce resentment resulting in an adverse rather than a beneficial effect on the problem. Planning which was too specific and rigid and fulfilled only a limited function must inhibit the future use of a building. This was important in circumstances where changes in function already occurred rapidly and were difficult to anticipate. Mr. Holt made a plea for simple rectangular shapes, openness and informality, together with the facility to extend certain departments. It should be realised that architects designed with the labour and materials at their disposal. They had to deal with the familiar problem of settlement, cracking, movement, and the activities of the average craftsman. The factory-made component could reach a higher standard than those made on the site, but cost prevented much of this being done. It was questionable, therefore, whether it was right to depend to a large extent on complex designs and on buildings in the fight against infection. Interesting examples of highly specialised units were available and Mr. Holt explained briefly the background to the planning of the Nuffield Tissue Transplantation Unit being built at the Western General Hospital, Edinburgh.

DISCUSSION

Fourteen members of the audience took part in a lively discussion opened by Dr. G. D. Forwell, Senior Administrative Medical Officer, Eastern Region, Dundee. The main aspects were:—

1. **Measurement and Research**

   Several speakers commented on the need for more precise quantitative and qualitative measurements of the problem. There was a need to define the dangers to which patients might be exposed and to employ more precise techniques of measuring the risks involved and identifying the infection created. Some form of notification of infection was a cardinal principle of epidemiology and without this there was no real basis for comparison or the assessment of measures used in control.

2. **Hospital Infection: Cross-infection**

   It was noted that these terms were not synonymous. While hospital infection might apply to, say, one-sixth of all patients in a hospital, only perhaps one-fifth of those infected in the hospital suffered from cross-infection. It was considered that aerial and indirect-contact infection might be receding in importance and the emphasis on self-infection might be increasing.

3. **Septic Lesions and Theatre Cleaning**

   There was considerable discussion as to whether it was more dangerous to treat patients with frank sepsis in "clean" operating theatres or whether the unsuspected carrier was likely to create the greater risk. The unknown disperser of pathogens was regarded as particularly dangerous by some, while the exclusion of open sepsis from certain theatres was considered more important by others. Some felt that all theatres should be treated as "septic" and, with a single high standard of discipline and technique, should be safe for all.

4. **Theatre Service Centres and Central Sterile Supply Departments**

   The view was expressed that the future of area C.S.S.Ds. might be affected by the fact that units in operating theatre suites designed for the central sterilisation of instruments, etc. might also, and more suitably, provide sterilised procedure packs for ward units in that hospital.

5. **The contribution of architectural design**

   It was agreed that discipline could be helped by good design. If it was right to expect a prescribed regime to be carried out it was equally necessary for the design to permit it. Design should aim to make the right behaviour easy. It was unrealistic to expect that correct procedures would be carried out if they involved a constant struggle against the physical environment.

6. **The contribution of equipment design**

   Some types of equipment, e.g., respirators and incubators, were particularly liable to harbour infection. Such infections could prove extremely dangerous and it was essential that their prevention should be recognised as a primary criterion of design. The dismantling of such equipment for cleaning and sterilisation should be facilitated.

7. **The value of highly specialised units**

   Whether the production of almost ideal and highly expensive designs for special circumstances would seriously affect the planning of general ward units was questioned. It was considered, however, that this type of design would help in achieving better general standards. More than one speaker suggested that important results might be obtained if a series of routine operations, e.g., cholycystectomy, could be undertaken in such a specialised unit to see if controlled physical environment produced a significant level of protection.

8. **Pre- and post-operative treatment**

   The potential value of isolating patients in single rooms in the immediate pre- and post-operative phases was raised together with the possibility of an increased risk of infection in an "open" reception/recovery zone. It was considered, however, that for a suite of theatres, pre-operative tensions would in fact be reduced by a well-planned and suitably staffed reception ward with cubicilised areas at the theatre suite and that, from the bacteriological point of view,

there would be little difference between the use of a cubicle in a recovery ward and a single room situated elsewhere, particularly if the room had no air-lock and shared nursing staff. A greater benefit would be obtained from the grouping of patients in the pre- and post-operative stages if it ensured improved supervision by skilled staff and the immediate availability of special equipment as required. As regards wound infection, it was considered that most contamination originated in the operating theatre itself.

9. **Nursing technique**
It was noted that the former "fever" training was extremely good in inculcating habits of observation, discipline and general technique. It was important that these values should still be stressed.

10. **Dirty wards**
It was a nursing view that many general wards are less clean than they used to be. There was an urgent need for thorough cleaning of older ward units; most walls and windows required attention, and, more often than not, ledges were filthy.

11. **Overcrowded wards**
That overcrowding had direct implications in hospital infection was incontrovertible. It was noted that this had been recorded as far back as the 1740s by Sir John Pringle.

12. **Ventilation**
Several points were raised in discussion as regards the dilution factor in rates of air change, the potential value of a central extract system in theatres, and the rate of clearance of contaminated air by various systems of ventilation. It was stressed that ventilation of wards and theatres tended to represent a compromise due to a lack of precise requirements such as were presented, in another context, in regulations for the prevention of fire.

13. **Plant maintenance and usage**
In many existing theatres the ventilating plant was not working as designed; this led to poor performance. It was important that the hospital engineer should understand what the particular plant could do. He should undertake routine maintenance, and tests should be performed together with the maintenance procedures. It was also important that facilities for tests should be provided in ventilating systems, e.g., straight lengths of ducts.

14. **Mechanisms of hospital-wide control and scrutiny**
The value of an infection officer was generally agreed together with the need for continual monitoring of episodes of infection in hospitals. Records should be examined by the medical and nursing staff who could review performance and, given the requisite data, would have material on which to act.

15. **Questions of morale**
It was suggested that hospital infection had become caught up in other issues of morale. In old and inadequate accommodation general discontent might lead to lowered performance and an increased risk of the spread of infection.
It was also noted that changes of environment might have unexpected effects, e.g., excluding patients from a realisation of the difference between night and day, the absence of normal sounds. General sensory deprivation during treatment could lead to emotional disturbance.

16. **Balance of advantage**
The discussion re-emphasised the need to keep balances of advantage clearly in mind. Expenditure would be necessary on many other ways of helping hospital patients and the use and deployment of skilled staff was of vital importance. Concentration of scarce resources in highly specialised units led to shortages elsewhere. If changes were made in techniques or in the use of accommodation it was essential that these changes should be fully and carefully assessed.

CONCLUSION

It was considered that the discussion between several disciplines had shown a perspective which was most realistic. While the answers to many questions had still to be found, the coming together of the various interests and the emphasis on seeking the most practical balance of advantage represented a hopeful climate of opinion.

February, 1966

BED USAGE

Efficient bed usage is at the heart of hospital management. Patients have a wide variety of dependencies yet rigidities are apparent in the pattern of hospital work and even in the way ward units are restricted in size and inflexible in use. In this conference experiences were presented, problems reviewed and various questions posed.

Dr. W. I. Card, Consultant Physician, Western General Hospital, Edinburgh, took the chair at a conference and discussion on bed usage at which a group of some 50 consultants, senior nurses, administrators and research workers were present. Six speakers outlined different aspects of the subject and approximately half the members of the audience contributed to an extensive discussion.

Dr. M. A. Heasman, Principal Medical Officer, Research and Intelligence Unit, Scottish Home and Health Department, directed attention to lines along which further progress might be made in the study of bed usage.

Duration of Stay

Differences in stay between English and Scottish non-teaching hospitals and a relative similarity in the teaching hospitals were noted. Average durations of stay for patients operated on for inguinal hernia without obstruction—typical cold surgery—were quoted from English hospital experience in 1961, as illustrative of the general picture. While there was a variation between 3 days and 17 days with a mode around 9 days, it was not known if patients from hospitals where the stay was long returned to work quicker or had a lower recurrence rate than those discharged from hospitals where the shorter period was the rule, or indeed if the reverse were true. For three non-teaching Scottish hospitals of medium size wide variations in duration of stay were described. One was considerably shorter and one longer than the national average, while the third was near that average. With waiting lists in all three hospitals there was a relatively small relationship between the length of stay and the length of the waiting list. Further studies approximating to controlled clinical trials were needed and at least one was noted to be in progress.

Information

The need for information was stressed. It was questioned, for example, whether clinicians really knew how long they themselves and other consultants were keeping their patients in hospital. When four surgeons at one hospital were asked to suggest which kept his cholecystectomy patients for the shortest time, each nominated himself. In fact, there was one "long-stay", two "medium-stay", and one "short-stay" surgeon. There was an urgent need to ensure that each consultant was given data concerning his own patients, and that it was presented in such a form that he could compare his performance with that of other consultants or groups. Once this sort of data was generally available, there was every reason to hope that it would prompt discussion at a professional level which would result in the shortening of the longer lengths of stay—or alternatively a spirited defence which would require factual information to be presented in justification. Making this sort of information available was the responsibility of the Scottish Home and Health Department, and the first steps in this direction would be taken in about July, 1966.

While it was essential for consultants to be aware of their performance in relation to others, there was much to be learned by an examination of their own pattern of treatment. How long patients were in hospital before an operation, or before all diagnostic tests were completed; when they were on the road to recovery how long were they kept in hospital, and did they really need to be there for all that time?

One busy gynaecological department had adopted the simple but effective expedient of categorising patients on each day in hospital into one of three so-called dependency groups—self-care, intermediate, and intensive. This was done at the cost of ten minutes clerical labour per day. These data reminded the medical staff of those due for review. A patient was automatically considered for discharge if she had been in a self-care category for two days. There was no question of rule of thumb being applied to discharging a patient. Indeed the scheme ensured more than ever that each patients discharge date was related to her particular circumstances. The practical result was that 200 days were saved in six months, which, with an average stay of 7 days, meant theoretically that another 60 patient's could be treated per year. If generally applicable and applied, such procedures might soon make inroads into waiting lists.

Social Histories

Another possibility for increasing turnover, which had not been investigated on any formal basis, was the extent to which a routine review of social circumstances might accelerate discharge. Overworked medical social workers must spend most of their time with problem cases; with present staffing this was probably all that could be done. But what would be the effect on duration of stay if the homes of all patients were visited immediately prior to admission for "cold" surgery? A report could indicate the patient's domestic suitability for early discharge, or, alternatively, of any social need for longer than usual stay. Such a task could be undertaken by a hospital or local health authority worker and it would be even better if such persons could be attached to a general practitioner. A system of this kind would be relatively cheap to administer and could help the consultant considerably.

Clinical Management

Whether he liked it or not, the consultant was a manager. It was to be hoped that the hospital would never be seen as a factory, and too close a comparison between management as applied in a hospital and in an industrial context could not be drawn. Nevertheless a definition of the functions of management as given by the Federation of British Industries was apposite to the consultant of today:

(i) to discern objectives in the environment in which management is being practised and to place these objectives in some order of importance;

(ii) to devise and implement means whereby these objectives may be attained;

(iii) to devise and implement means whereby the extent and efficiency of attainment of these objectives can be measured.

Without discussing in detail the first requirement in the complex hospital environment, it would be agreed that the principal function of the hospital was to treat as many patients as efficiently and humanely as possible consonant with the resources available and taking into account relative priorities. There were ways in which the second and third functions could be attempted. In general there was a need to devise, and study, objective measures of performance so that the consultant was in a position to subject himself to scrutiny and thus bring about an improvement in efficiency.

It was important that the consultant should regard himself more as a member of a team than one of a set of individuals working at times almost in opposition to one another. In order to achieve this he must be presented with data which was up-to-date and which showed his position in relation to the hospital as a whole, or even on a wider basis, in relation to the Region. As well as being provided with these data he ought to cultivate the habit of self-scrutiny of his own work in such a way that he became more aware of the areas in which improvement, particularly in bed use, could be made.

Further Suggestions

In addition to ways of becoming aware of patients to be considered for discharge, methods could be instituted to ensure that pre-operative stay was kept to a minimum. Consultants might study the time taken to "work-up" a patient, i.e., for all tests to be completed. And how much work could be done without the necessity for admission at all might be reviewed, or how much could be achieved with a lower standard of nursing provision in the sense of pre-convalescent, or hostel beds for patients who did not require the full range of inpatient services. In short, to improve efficiency in the existing situation, what was mainly required was constant self-examination with the provision of objective data on which this could be based.

Dr. G. H. Scoular, Area Medical Superintendent, Ayrshire, noted that healing was thought of in terms of the bed. Confronted with real illness there was a reflex reaction to stop the patient working, take away his clothes, place him in a horizontal subservient position, deprive him of his physical dignity and make it clear that he was ill and in the hospital's care. Convention held that there would never be enough beds and they should never be empty longer than was necessary to change the sheets. The empty bed stood not for success in emptying but failure to fill.

The average stay in an acute bed was some two weeks and for the greater part of this time the patient might be ambulant, able and willing to care for himself. But because of pre-occupation with acute beds, it had been left to the statistician rather than the doctor to question their usage in the context of today's pattern of illness. The annual occupancy percentage for a whole hospital did not show which departments had the most empty beds. For practical purposes figures of bed usage must be given in departmental form. The turnover interval was an index of vacancy more readily visualised by staff, and more directly related to the turnover of patients and their length of stay. Yet the highest occupancies or the shortest turnover intervals were neither ends in themselves nor evidence of effective use of beds. Too frequent use of extra beds might, in fact, endanger high standards of medical and nursing care. The reduction of long waiting lists was the major objective: the number of patients successfuly treated to a conclusion was the most important index of achievement.

Since the number of beds in an area was still more a matter of inheritance than planning, different places used or made do with differing numbers. There was no evidence that patients suffered or benefitted in proportion to whether beds were more or less plentiful. The greater the number of beds the longer patients stayed in them and the administrative reaction was to want to close beds to balance the books. Local reaction, mainly outside the hospital, was to retain them because they could be filled. Both reactions were unrealistic. Other factors are involved, e.g., a shortage of general practitioners and their large lists, the level of unemployment, and poor housing: spending on health and welfare services might be low with inadequate provision of places for the elderly. Indeed, an over-bedded community might be a socially deprived community.

Reports indicated much higher usage in cities; this phenomenon had been given insufficient study. Most urban hospitals were deeply involved in the fallacy of trying to treat the many and diverse needs of old age by means of the bed. Forced to admit patients, they might then be unable to discharge them for extra-mural reasons. The hospital-prone patient might be socially unstable for reasons such as age, personal inadequacy, large families and poor housing. The hospital population had always been loaded in this way. The discredit lay in using the hospital of today for the charities of yesterday.

The growth of the National Health Service had concentrated on hospitals. They were popular, appreciated and much used. In the cities there was a wide choice both of hospital and consultant, and the patient was not discouraged from using or overusing the facilities. Popularity and reputation in the mind of the family doctor, the private consultant and the general public led to uneven distribution of demand. Although it cannot be assessed statistically, this factor was very real. It affected the size of out-patient figures, the numbers on waiting lists, and the occupancy of beds. To have patient approval was refreshing and to provide a good standard of care was admirable. But it was increasingly expensive. The national average for maintaining a patient in a non-teaching acute hospital in Scotland was at present some £33 per week. This did not include the element of capital expenditure or invisible elements such as sickness benefit, national assistance, loss of output or loss of wages and tax. The real cost of in-patient stay might be double the declared figure. There was almost certainly no more expensive way of living than in an acute hospital bed.

Unfortunately there was no definition of an acute bed which could be meaningfully applied. Each consultant had his own criteria of acuteness. There was evidence that such beds were already being devalued by rapid progress in diagnosis and treatment. The Bradford scheme of early discharge from maternity hospitals, 24 to 48 hours after delivery against the national average of seven days,

had the approval of mothers, general practitioners and midwives in the city. The report of Stephens and Dudley on out-patient surgery for hernia suggested that the day hospital concept might develop for the acute sick. Traditional bedside medicine might now be moving into the out-patient clinic and day hospital, and patient care into the patient's home and environment. If each bed in hospital were used only for its correct purpose we should need fewer. Stallworthy put it clearly, "The solution is obvious", he wrote. "Hospitals required for acute care should be used for that purpose and for that purpose only, with early patient transfer to a simpler, quieter, less expensive environment where medical and nursing requirements would be minimal. Emphasis would be on self-help and early re-habilitation.

The opportunity to establish such a unit presented itself in 1958 with a generous benefaction to Kilmarnock Infirmary. This came at a time when a small sanitorium in the outskirts of the town had become largely redundant. It was converted into a "continuation treatment unit" in association with Kilmarnock Infirmary. Called Torrance House in appreciation of the benefactor, every effort was made to create the atmosphere of a well-run hotel rather than a hospital. Three criteria were laid down for admission:

(i) transfer of medical and surgical patients to be for a period not exceeding three weeks;
(ii) all patients on transfer from the Infirmary to be ambulant and any patient becoming again bedfast to be transferred back to the Infirmary;
(iii) all patients to be able to wash, dress and attend to toilet.

On average patients were transferred from Kilmarnock Infirmary three days after such operations as herniorrhaphy and appendicectomy; after procedures such as gastrectomy and cholecystectomy they stayed a day or two longer. Transfers took place daily. The patient's fitness for Torrance House was assessed on the day before transfer. Post-operative surgical care was the responsibility of the surgical staff of the parent hospital. A daily ward round was done by at least one consultant accompanied by a registrar and a house surgeon. There was no resident medical staff. The nursing staff consisted of Matron (shared with an adjacent hospital), one administrative sister, four full-time and three part-time staff nurses, one part-time enrolled nurse and five nursing auxiliaries of whom two were full-time and three part-time. This gave an equated figure of eleven for forty-four beds.

By deliberately providing such a unit for ambulant post-operative patients more economic use could be made of the expensive facilities of the acute general hospital. Early transfer freed a bed for a patient who more urgently required it. The average length of stay for surgical patients was five days and for medical patients twenty-two days. What did it cost? The patient-week rate at Kilmarnock Infirmary, including consultant and specialist staff costs, was at present £33. The patient-week rate at Torrance House, again including such costs, was £18. The saving was £15 per week.

From the patients' point of view the advantages were considerable. They appreciated their removal from the busy acute ward where noise and sights and smells might offend, and deaths were not infrequent. Rest was not disturbed by night admissions or by confused fellow patients. Pleasant surroundings with access to gardens and the opportunity to walk or rest as they wished contributed to rapid physical and mental rehabilitation. General practitioners reported an earlier return to active life and work.

A continuation treatment unit, while largely based on self-care, did not run itself. It was not merely a place to which patients were sent to make room for the more acutely ill. Active interest and continued supervision on the part of the physician and surgeon are essential if the patient was not to be left with the impression that when recovering his welfare was of no great importance. This point could not be too strongly emphasised if a continuation unit was to be accepted by the patient as an integral part of an efficient Hospital Service.

Mr. J. Garden, Consultant Orthopaedic Surgeon, described recent developments at Law Hospital, Carluke, as illustrative of progressive thinking on bed usage.

The hospital is a scattered E.M.S. unit covering some 80 acres. It has evolved in four basic ward groupings each of which is to some extent a kingdom of its own. These consisted of:—

(i) a surgical block (190 beds) with three teams;
(ii) a medical block (190 beds) with three teams;
(iii) an orthopaedic and accident block (120 beds) with two teams;
(iv) a geriatric block (170 beds) with two teams supplemented by 100 beds at a nearby hospital.

There are two out-patient departments and considerable difficulty arises in the allocation of patients from the out-patient areas to the separate units. All the units come under severe pressure. Attempts are made to reduce the number of beds to a reasonable complement per ward but during the winter no acute unit had been able to keep the numbers down as would have been wished. There were 37 beds in an orthopaedic ward suitable for 24 beds at one point. An illustration of the pressure on beds was there were at present 34 patients (+2 in the intensive care area) in an orthopaedic ward normally for 30 beds and better with 24. Of the 36 patients who were the responsibility of this unit, 4 had been taken from the waiting list and the others admitted as emergencies. Twelve had fractured hips; 15 patients were over 65 years of age, and of these 10 were awaiting transfer to a geriatric unit.

The decision to develop a main accident centre at Law Hospital led to a radical re-assessment of functions and, in addition, attempts had been made to introduce an intensive care unit in the surgical area. This unit had four beds and had proved its value. There has been difficulty over the allocation of sufficient money for staff. It would have been more used by the medical specialties but for the factors of distance and size. Mr. Garden stressed that scattered, small, intensive care units were expensive in staff and that the use of complex apparatus, such as ventilators, in the side rooms of ordinary wards was difficult and unsatisfactory. In reviewing the organisation it was clear that the concept of independent units would have to go. Patients who were extremely ill and in need of intensive care would have to be received, assessed and treated at a single unit and then moved forward

according to the main elements of progressive patient care.

It was noted that a hospital 9 miles distant had a lower bed occupancy rate and that some functional integration appeared both possible and sensible, with Law Hospital giving priority to accident and emergency patients, and the other hospital dealing with the "cold" orthopaedic work. Problems arose, however, from the fact that these hospitals were administered by different Boards of Management.

In conclusion, Mr. Garden expressed the view that the organisation of separate units would require to be given less emphasis and that the solutions which would emerge at Law Hospital could provide valuable data not only for the re-organisation of existing hospitals but also in the planning of new units.

Sir James Fraser, Bt., Department of Clinical Surgery, Edinburgh University; Consultant Surgeon, Royal Infirmary of Edinburgh, suggested that the requirements of medical teaching did not always receive sufficient emphasis. The pattern of medical training was changing and other requirements in hospitals would be affected by the revised curriculum. The aim was not to produce a fully equipped doctor in the undergraduate period but an individual with a good background of basic knowledge who was ready for further training in a particular specialty.

It was noted that courses of dialectic lectures to large groups of undergraduates together with clinical instruction in wards when patients were taken to a group of 20 or more students, meant that a small number of patients could be used in teaching a relatively large number of students. This system of instruction had little effect on the turnover of patients in the ward, though there might be a tendency to retain a patient who had some particular value from the teaching point of view. Now, however, the aim was for each student to be more closely in touch with a large number of patients and so far as possible to follow their progress as individuals. The presentation of a wide span of disease required a suitable selection of types of patient in the wards at any one time. It followed:

(*a*) that if for purposes of patient management there were a large number of specialties and subspecialties, it was difficult for an undergraduate to see a wide range of disease processes. It was impossible for each student to be attached, even for a short period, to every specialist unit;

(*b*) that undergraduate students attached to a general ward saw a variety of types of disease directly related to the number of patients and the turnover of patients in a given time. Every patient retained for longer than necessary represented a piece of practical experience less for the students in training.

It was noted that in some respects, the period of pre-registration training was the converse of bed usage problem as affecting undergraduates. At the pre-registration stage patients were followed, for example, from pre-operative to operative and post-operative phases and the whole sequence of a disease process (as distinct from a large number of types of disease) would be seen. If during this sequence patients were moved elsewhere, e.g., to a "supporting" bed, the experience of patients' progress might be broken. The development of second-line beds might therefore be of assistance in undergraduate training but could be less valuable in the pre-registration stage. Another relevant factor was that teaching hospitals attracted those interested in special subjects, and there was emphasis on investigation and research. This might require longer periods of time for examination and investigation which, in turn, would affect the turnover of patients in any particular ward.

It was pointed out in considering the statistics of bed occupancy that it was important to obtain all the facts including data relating to post-operative infection. The incidence of hospital infection in surgical specialties might be directly related to the length of time the patient was in a ward prior to operation and it might be the case that patients for elective surgery could be treated more expeditiously in the long run if they were admitted twice. The first period would be for investigation and, after a return home to regain their normal bacteriological flora, they would be admitted for operation. A sequence of this kind might be particularly valuable in teaching hospitals where, for various reasons, there was a tendency for a longer patient stay.

Dr. R. F. Logan, Reader, Department of Social and Preventive Medicine, University of Manchester, reviewed the results of various surveys and other data relating to bed occupancy and Regional experience, particularly in England and Wales. Reference was made at the outset to the fact that (as quoted in the *Lancet* (1966) *i*, 7436, 529) the National Plan for 1966/70 showed the National Health Service as ranking fourth in a list of percentage increase in subsidy over 1965 levels. The figures were:—

	Percentage increase
Rent	57
Roads	35
Education	22
National Health Service	16
Defence	0

It was noted that at a time when medicine could achieve more than ever before, its success was an embarrassment when the financial provision must inevitably be restricted.

Dr. Logan commented on the following topics:—

(*a*) differences in the provision of hospital beds in various Regions, the variability of provision in different specialties and the wide range in running costs per head of the population;

(*b*) the variability of lengths of stay for common disease and in relation to selected conditions such as hernia and strabismus, also the number of days in the pre-operative stage in general surgery;

(*c*) the recorded differences between average lengths of stay for particular conditions in the U.S.A., Sweden, and in England and Wales. In this connection it was noted that for tonsils and adenoids, appendicectomy, herniorrahphy, cholycystectomy and in maternity work the lengths of stay in England and Wales were significantly longer. In comparison with Sweden, it was noted that

there were proportionately more doctors available in the U.K.

(*d*) Some factors relating to out-patient work. For example, that the number of out-patient sessions at hospitals and the numbers of attendances had not risen as quickly as those for in-patients. Long delays were experienced before obtaining a specialist opinion and a considerable sequence of work goes on in out-patient areas which had little, if any, effect on the in-patient situation.

(*e*) The main causes of admission to hospital. It was noted that with tonsils and adenoids, cancers, hernias, fractures and appendicitis heading the list (in males), there might not in any event be an extensive range for undergraduate students.

(*f*) The percentage since 1957 of in-patients over 64 years of age. A sharp increase since 1961 was noted.

(*g*) The percentage of deaths in hospital from certain main causes. It was shown that in 1962 there was a definite rise over 1956 in the number of deaths from disorders of the cardio-vascular system, cancer, strokes, and chest diseases, with no significant changes in this period in deaths from accidents.

(*h*) The sources of patients. In 8 large towns in one English Region there was a variation between 101 and 32 patients per thousand of the population. Relative under-usage from more rural areas had been encountered but work on Tees-side had not shown the hospital to be substituting for poor housing conditions. As regards social class, data from 1949 indicated that the middle class (3) absorbed the largest amount of provision as regards National Health Service work, and for visits to dentists, social classes 1, 2 and 3 tended to be higher than 4 and 5.

(*i*) Individual variations. It was noted that data might vary not only within a hospital but in relation to individual specialists. Figures were shown of substantial differences between the numbers seen by two consultants at one hospital and according to social class of the patients. It was necessary, therefore, to obtain data on a more individual basis if realistic assessments are to be made.

Dr. Logan noted that a "bonus value" in the use of accommodation had been obtained in the early antibiotic era and at a time when, with improved anaesthesia, there were effective developments in surgery. The effects of these factors had been expended and a further "bonus" affecting the use of accommodation would only occur when some significant new advance was made.

It was important to consider bed usage from the point of view of the effect it had and the cost entailed in relation to limited resources. Where bottle-necks were identified it had to be assessed whether an investment to clear the bottle-neck would in fact relieve the problem as a whole. It might be too easy to obtain a cost for everything but fail to obtain a real assessment of the value of anything. It was impossible to foresee the best being obtainable for every possible patient. He noted, however, that more rational analyses were now being undertaken and that an identification of both potential and actual resources might be made in a way that was impossible 5 years ago.

Dr. J. S. Meredith of the Scottish Hospital Centre explained how, along with a seconded departmental sister and a research assistant, he had begun a pilot study of "supporting beds". This had been made possible by a grant from the Nuffield Provincial Hospitals Trust.

From a review of the literature and visits to various hospitals, it was clear that the subject was still at a stage when there were many more unanswered questions than agreed conclusions. The study group had set out a series of such questions and Dr. Meredith posed these to the meeting. They mainly concerned:

(*a*) The reasons which had prompted previous studies in this field.

(*b*) Why studies already undertaken had either appeared to fail or to provide suggestions difficult to implement.

(*c*) Whether thinking on this general subject related to present day situations and how far ideas were still conditioned by the pre-National Health Service era.

(*d*) The problem of reaching agreed definitions.

(*e*) The effect of more selective patient grouping and, in particular, the provision of intensive nursing care.

(*f*) The range of facilities which might be included within the term "supporting bed", their location, and suitable levels of staffing.

(*g*) Whether convalescent units should in fact be the responsibility of the hospital service at all.

(*h*) How the future of cottage hospitals may be linked to this question.

(*i*) If there was a need for a significant number of hostel-type beds in relation to other than highly specialist units.

(*j*) What alternatives to traditional hospital care were likely to develop.

Dr. Meredith explained that in the course of the pilot study it was intended to carry out a sample census of patients in various types of hospital and that the programme of visits and consultations with hospital staff would be continued. The reason why certain small hospitals had been found uneconomic or unnecessary would be studied and a hypothetical unit would be scheduled and costed to assist in measuring the need for such accommodation and to identify potential savings in building costs and nurse staffing.

DISCUSSION

Dr. J. H. F. Brotherston, Chief Medical Officer, Scottish Home and Health Department, opened the discussion. He considered it clear that the first essential was to obtain accurate information on a wide range of factors affecting patient care and bed usage. He paid tribute to the pioneering work undertaken by operational research workers in this field, including Dr. Logan. New insights were appearing, but even so, we were still at the stage of attempting to define the basic grammar of the statistics of medical care.

While much had been done in this country in the development of resources, it was paradoxical that so little had been undertaken in the assessment and measurement of services before and after changes had been made. Now, however, there was evidence of a realisation of the value of investing in information. From modest beginnings this may lead to a national system, including the collection and interpretation of the essential statistics relating to hospital medical practice.

It was essential that data collected should be refined and returned in a feedback which was meaningful and useful. It was also important to review it, take any necessary action, and raise relevant questions for the improvement of the service.

Dr. Brotherston noted that there were already signs of movement and of change. Many authorities, including consultant staff, appeared to feel that the situation, if not wrong, was at the same time not right. There was a healthy state of self-questioning and this, together with the development of a research and intelligence unit, complemented by some forms of clinical organisation to examine the statistical answers and set further questions, raised the hope of substantial improvements in management and clinical organisation.

The Chairman considered that seven kinds of bed appeared to be required.

(i) Hostel beds
(ii) Twenty-four hour beds
(iii) Intermediate care (ordinary) beds
(iv) Intensive care beds
(v) Second-line beds
(vi) Convalescent and rehabilitation beds
(vii) Geriatric beds.

Of these categories it was noted that a consultant physician might only be in charge of one type and that some of the other groups did not exist or, particularly in the case of geriatric beds, were extremely scarce.

The view was presented that a much more fluid concept of bed usage was necessary. The use of beds as a status symbol should become outmoded and in fact it was logical for the most senior clinicians to have the fewest beds. It was noted that at the Western General Hospital, Edinburgh, a medical services division was now being developed and had been accepted by the various consultants.

In the general discussion the following were the principal points:—

1. **The need for more information**
It was generally agreed that hospital activity analyses, the more precise collection of data, a suitable feedback—particularly to consultant level, and a more precise definition of categories of patient based on survey material and adjusted to take into account forseeable trends, were essential.
2. **How to get action**
It was submitted that the activities of operational research and of practical trials would to a large extent be nullified if it proved impossible to secure the acceptance and introduction of new methods of procedures. The work done in Aberdeen, Edinburgh and Birmingham on out-patient surgery was quoted in this context. The problem appeared to be how to get those who work in hospitals to change their habits and how much could be expected of "management", in the initiation of desirable change.
3. **Clinical Management**
More than one speaker noted that consultants were now, and would continue to be, to some extent managers. At the same time, there was a need to depart from rigid, inflexible groupings. This particular aspect of "management" required integration with others such as the provision of suitable supporting staff, operating theatre capacity, facilities for radio-diagnosis, and purchase of equipment. The effect of distance and the dispersal of consultants' work in some areas were noted as affecting patients' length of stay and a reference was made to the "Consultant in administrative charge". Improved through-put in clinical units had been achieved by better organisation but it was still considered that there was an undue number of instances where the patients were admitted to "acute" wards who then could not be discharged. Such long stay patients tended to be overlooked in the presentation of statistical averages.
4. **The pattern of management areas**
Anomalies in the number of beds in different Boards of Management areas were quoted. Due to artificial boundaries between Boards there were examples of demonstrable inefficiency. Where Boards had a small number of beds there was insufficient scope for manoeuvre as required by efficient management. The plea for larger numbers of beds in management areas was seen to some extent as parallel to the need to look for larger and more fluid areas of bed management within particular hospitals.
5. **The need for better communication**
Inefficient bed usage could result from poor communications between doctors, nurses, patients, relatives, general practitioners and local authority workers. More frequently than may be realised, patients were retained in hospital unnecessarily on this account. It was stated that the reason why beds in the United States tended to be occupied for shorter periods for the same conditions than in this country was not related to cost so much as to more efficient communications. With efficient Home Help and other services available in the U.K., there was surprisingly poor liaison between the hospital, the general practitioner and the local authority.
6. **Categories of bed**
As a means of economising in staff, five-day beds were favoured by nursing members of the audience and, where suitable accommodation was available, the increased use of day-beds was considered desirable. A consultant suggested the addition of a category of bed between continuing care and rehabilitation for particular conditions such as strokes and head injuries.
7. **Nursing staff**
Several nursing speakers emphasised the need to conserve skilled nursing staff. If such staff had to be spread thinly and indiscriminately throughout the hospital, this could be extremely inefficient. It was vital to group patients

according to the degree of dependency on skilled nursing services.

8. **Links between hospitals, general medical practitioners and local authority services**
Several examples were given of inefficient liaison between elements of the National Health Service and it was considered by some that the subject of bed usage and of second-line beds could not be fully discussed without considering the local authority provision and general practitioner services. If local authority residential accommodation (Part III) could be equated with second-line beds, this might be a valuable concept. It was noted that the discharge of elderly patients from hospital was often extremely difficult and might be impossible until suitable home help had been arranged and this could take several days or even weeks. While it was agreed that detailed operational research was important, some inefficiencies were already obvious and action might well be initiated without further investigation where there was lack of understanding or overlapping facilities.

9. **Cost effectiveness**
It was stressed that an increased emphasis in cost effectiveness was bound to be felt in future. So far most studies and changes in the hospital field had affected non-clinical areas such as domestic services, portering, general administration, boiler houses, etc. It seemed clear that while lay hospital administration had no direct part in clinical affairs, it was essential that management should provide the clinicians with the detailed information to permit a rational reorganisation of their particular sphere.

10. **Consultative out-patient departments**
It was noted that general practitioners not infrequently sent patients to consultative out-patient departments for advice and found that they were retained for considerable periods for treatment. It was suggested that joint studies into the relationship between hospital out-patient departments and general practitioners' work would be profitable.

March, 1966

RESIDENTIAL ACCOMMODATION FOR HOSPITAL MEDICAL STAFF

The Scottish Hospital Centre undertook a survey of the present position and copies of the report are available. This conference and discussion helped in setting the scene for the survey and many important and pertinent observations were made by the main speakers and during the discussion.

Mrs. C. J. Tudhope, a member of the Eastern Regional Hospital Board and of the Council of Management of the Scottish Hospital Centre, took the Chair at a meeting on Friday, 15th April, 1966, to discuss the question of residential accommodation for hospital medical staff. Eight speakers outlined aspects of this complex question.

Dr. J. L. Graham, Medical Officer, Scottish Hospital Centre, stressed the lack of published information and drew attention to the increase in junior hospital staffing in the past 10 years (48%) and the important increase in the number of young doctors who were married. The number of medical students marrying before graduation had risen sharply. There were indications that the percentage may have increased by three times in 10 years and was still rising.

As part of a study being undertaken by the Scottish Hospital Centre, the results of which would be published in the relatively near future, a considerable amount of statistical information had been obtained from Hospital Boards, Boards of Governors, the Northern Ireland Hospitals Authority and the results of several surveys had been obtained and analysed. Data had also been sought from universities, the General Medical Council and the British Medical Association. It appeared that the number of junior staff who were married was as high as 54% in some areas. As regards future planning or the adaptation of accommodation at existing hospitals, there appeared to be no uniform policy. Indeed, the variety of the proposed provisions was its main characteristic.

It was noteworthy that senior medical staff held differing views on the duties of junior staff and on the type and siting of accommodation required. The question of using duty rooms to complement residential accommodation in the vicinity of the hospital and factors such as the critical distance between residents' quarters and their place of work remained vague. Recent planning requirements such as intensive nursing care and intensive therapy units, and improvements in accident and emergency services had also affected staffing requirements and the problem of providing suitable accommodation for junior staff.

There were also differing views on the type of accommodation to be provided. Some held strongly that an attempt should be made to form Residents' Clubs on the analogy of an officers' mess, together with suitable recreational facilities at each hospital. Others favoured the provision of more flexible accommodation, some held that it was better to build new accommodation than to adapt old premises The question of cost was also important. The rents charged to junior staff might lead to financial embarrassment. Again, the amount of married accommodation available had an important effect on recruitment.

Dr. Graham concluded by posing certain questions which affected the policy and provision of residential accommodation including points relating to the possibility of shift systems, the categories of staff likely to require accommodation at or near hospitals, the question of duty officers, overnight stay accommodation, factors relating to married accommodation and the presence of young children, the different needs of particular specialties and questions of finance

Professor I. Donald, Department of Obstetrics and Gynaecology, Univesity of Glasgow, said it was obvious that the discussion would centre on the problem of marriage. The danger was a tendency to think in terms of pre-war rather than post-war conditions. Not only had the number of resident staff greatly increased in the past 10 years, but the standard of treatment and the responsibilities borne by resident staff had also risen. Living conditions had not improved greatly since his days as a resident when poor accommodation was tolerated as an investment. Then, however, few junior doctors were married. In common with others, medical staff had the right to marry in their early twenties and, indeed, this was an obstetrically suitable age.

Changes in the medical curriculum put a greater load of responsibility on younger graduates and on undergraduates. There was even a school of thought which felt it desirable to have a second pre-registration year. Professor Donald wondered how this would affect the growing number of married students and recruitment at a time when the National Health Service was already short of staff and many hospitals were dependent on overseas labour. Some overseas governments were already restricting the number of medical graduates leaving to serve in British hospitals.

It was pointed out that married resident staff had the expense of running a home as well as having residential emoluments deducted from their salary at source. Questions of mobility and schooling had also to be considered and it had been shown that there was less difficulty in obtaining staff where suitable residential accommodation was provided. It was felt that all Hospital Boards should regard it as part of their responsibility to provide residential accommodation for married junior medical staff and that removal expenses were a legitimate charge on Boards.

Because of generally poor conditions of service, low salaries, and a lack of reasonable accommodation, many able young doctors were being lost from the hospital service. Other countries could offer substantial inducements and Britain ought to be able to compete in this market. Better quarters for married staff must be provided on the basis of the likely number at least up to and including the registrar grade, and accommodation should be available for post-graduate students particularly those from overseas. This suggestion was neither silly nor extravagant. The problem was urgent: action to remedy the situation should be taken at once.

It was possible to invest endowment funds in property which could be rented to married staff at a

reasonable cost and provide an adequate return on capital. It was felt that Hospital Boards should make it their business to acquire property and rent it at an economic charge. In this way married staff would be saved the legal costs incurred in purchasing property, greater mobility would be achieved and hardship diminished. It remained questionable, however, whether serious action would be taken before the position deteriorated still further.

Dr. D. T. Braid, Anaesthetist, Royal Infirmary of Edinburgh, said that it was impossible to provide all the eleven and a half thousand junior hospital staff in the United Kingdom with a house. It was necessary, therefore, to review why residential accommodation was required.

Hospitals supplied a 24-hour service, much of which could be done by doctors on call, but in intensive therapy and accident units it was necessary to have medical staff actually present in the unit at all times.

In the pre-registration year, the young resident learning the job took longer than would more experienced members of staff; they frequently finished late and were often on call. In some specialties a period of residence was required in order to obtain high qualifications. Rotation schemes also raised housing problems and many junior appointments were for only 6 months or a year. This meant considerable expense if the person concerned had to purchase a house. In the pre-registration period the resident should take every opportunity of learning. This was not always possible in practice. The long hours of work rendered many junior staff too tired for effective study. Registrars were studying for higher qualifications and the majority were married and had other commitments.

Difficulty was experienced by junior staff, especially those from overseas, in obtaining accommodation. Single men did not want to set up house and preferred resident accommodation in the hospital with the usual facilities, but such accommodation might not be available, or if available, might be unsuitable due to cost or size. In the past, junior medical staff accepted poor salaries because of the promise of better things to come. This was no longer appropriate. It was possible to have a reasonably rewarding life in the hospital service but very few fortunes would be made. Doctors were required to maintain certain standards, to run a car and have ready access to a telephone—often installed at their own expense—for emergency calls. It was felt that junior staff should be reimbursed for any outlay due to the short duration of appointment, but noted that where an employer paid all removal expenses he had the right to send a member of staff to any part of the country. This lack of freedom of choice might not be welcomed.

Two types of accommodation were required: overnight stay accommodation and accommodation for staff who were resident in the hospital for 6 months or a year. For overnight stay, slightly lower standards were acceptable as all that was required was a bedroom, a commonroom and shared dining accommodation. Better accommodation should be provided for junior staff actually living in the hospital, including separate dining facilities. There must be a reasonable degree of privacy and recreational facilities, possibly squash and tennis, should be provided.

The staffing structure of hospitals was changing as were the needs of the National Health Service as a whole. There was an increasing shortage of general practitioners and of hospital doctors. Having the greater proportion of junior staff, teaching hospitals had the best chance of influencing new doctors, but reasonable accommodation was more often available at peripheral units. In the absence of longer terms of appointment and higher salaries, it might be better for more junior staff to go to these peripheral hospitals first. They could then decide whether they wished to specialise and remain in the hospital service or not. Teaching hospitals would then be staffed by higher grades of staff with longer periods of appointment, and more able to provide their own accommodation.

Mr. W. A. Stevens, Secretary, Northern Regional Hospital Board, said that many things required to be done in hospitals at the start of the National Health Service and accommodation for the medical staff received scant attention. The picture of the 1930s continued for many years. In 1958 there were Whitley Council recommendations concerning the type of accommodation for up to and including the Senior Registrar grade. As a general standard the accommodation should be structurally sound, with no leaks or damp, there should be hot and cold water etc. While the recommendations themselves were unexceptionable it should not, in fact, have been necessary to make them.

The problem was aggravated by the considerable increase in junior medical staff—particularly in the teaching hospitals—and the increased proportion of married staff for whom married accommodation was necessary—about one-third of the students in the final year. This fact may be of even greater significance to non-teaching hospitals as, with the general shortage of medical staff, they faced greater difficulties in recruitment. The problem of married junior staff was not entirely of recent origin. In 1951 it was found necessary in Perth to provide married accommodation for Registrars. The problem had now spread to the House Officer grade and to tackle this effectively and economically, some subdivision into categories was necessary; e.g.:

Single House Officers
Married House Officers both working in hospital
Married House Officers only one of whom was working in hospital
Married House Officers with families.

Account must also be taken of the question of providing accommodation for medical undergraduates in temporary posts during vacations.

Many new hospitals were now being built and theoretically these problems should be reasonably easy to solve. Hospital Building Note 24 on residential accommodation gave a fair degree of guidance. Possibly the most economic solution, however, might consist basically of blocks of flats each of three rooms, self-contained, consisting of two bed-sittingrooms and a sittingroom together with bathroom, kitchen etc. These could be allocated in a flexible manner. The sittingroom could, if required, be used as a third bedroom. The flat could be used to house two single House Officers or a single Senior House Officer or Registrar, or it could provide a self-contained flat for two married

House Officers both working in the hospital. Flexibility in use was essential as the percentage in the various categories would vary.

The location of the blocks in the hospital area must ensure some privacy and peace, but at the same time be close enough to meet emergency needs. For Registrars, unless the requirements of the specialty were such that it was necessary for them to live in, accommodation was better provided outwith, but close to, the hospital. This could be achieved most satisfactorily by the purchase of property. It was unlikely that such property would depreciate in capital value. Many new hospitals had housing schemes in the vicinity and it was generally less expensive to purchase newly constructed property than to adapt older buildings or build in isolation.

Old hospitals presented more difficulty. If there was insufficient money or no site available for a new block, improvements could only be effected by improvisation, adjustment and ingenuity. A limited number of houses were already available at most hospitals and it might be more important for these to be used for junior medical staff than the present occupants who, with more regular hours and longer periods of employment, might have housing elsewhere.

Charges for accommodation laid down by the Whitley Council could be applied to a block, housing various categories of staff and giving full residential services. Married House Officers and those with families should be separately housed. It had been found that some 90% of junior doctors preferred to rent furnished accommodation, and that this should not be restricted to basic furniture but include linen, crockery etc. Although houses or flats might be provided from central funds, it was felt that Registrars should not have their accommodation furnished by the Exchequer: this might be done from endowment sources. Rent would be paid to the Exchequer, and the cost to a Registrar for rent, rates etc., could be substantially less than for furnished accommodation elsewhere. Commonrooms, access to library facilities and to, for example, tennis, squash and badminton were necessary but, with the provision of an adjacent "coffee" room, shared dining facilities might be used.

Mr. Stevens felt that a great deal of emotion was engendered on these problems, much of which could be avoided if the requirements of junior staff were clearly and realistically presented and if their representatives had easy and direct access to the hospital secretary, the medical superintendent, and, if necessary, to the Hospital Board.

Mr. D. I. Black, Senior Architect (Housing) Scottish Development Department, pointed out that in any scheme the architect must have information on the needs of the user, the amount of money available, and the nature of the site.

He illustrated the problem by explaining the early stages in the development of the new hospital at Ninewells, Dundee, where the needs had not changed significantly since discussions in 1961, but the cost of building and materials had risen and Hospital Building Note 24 had been published.

Mr. Black described current standards for Local Authority housing and what type of accommodation might be obtained at different levels of rent. He compared the accommodation specified for Ninewells with the minimum standards acceptable for Local Authority housing under the Building Regulations, and showed slides of a recent block of Local Authority maisonettes which approximated to medical residential requirements. There was hope that the application of industrialised techniques to housing could hold rising costs to their present level, but it was important to set cost limits on the basis of a realistic scale of accommodation.

Mr. C. E. Barth, Senior Registrar in Surgery, Western Infirmary, Glasgow, used his own experience to illustrate the problems facing junior medical staff. After military service he became an undergraduate in 1947 and was married while still a student. One child born before graduation, while welcomed, had presented additional problems, but it was not until his final year that the hard facts of employment became fully apparent. Wishing to follow a career in surgery this meant having to accept the prospect of unsettled home conditions. He was fortunate, however, in securing an appointment at a hospital at which married accommodation was available. This meant a move to the north of England. Largely because of availability of accommodation he stayed five years—longer than would otherwise have been the case. On moving to a teaching hospital in Glasgow he found himself in considerable financial difficulties because of having to buy a house. From Glasgow he went to Dumfries as a Senior Registrar and the financial side became a little easier as, having experienced difficulty in obtaining staff, Dumfries had provided a certain number of flats and houses for rent. His accommodation in a converted ward proved very satisfactory. He had recently returned to Glasgow and had to find his own accommodation but this was no longer such a financial burden though still presenting certain difficulties. He would hope to remain in this post for some time.

Mr. Barth considered that his experiences were similar to those encountered by many others who had to balance the advantages of a career in the hospital service against its effect on their family life. As it was possible for some peripheral hospitals to provide accommodation, it would appear that the large teaching hospitals could do so also. If so, this would help to stop the ever-increasing flow of young doctors out of the country.

Dr. F. Knight, a Registrar in Psychiatry at Craig House, Edinburgh, said that he could only tell of his own experiences. In his present appointment he had accommodation provided by the hospital, outside the grounds but reasonably near, but in previous posts he had difficulty in obtaining accommodation and on one occasion was unable to have his family with him. At one time he paid 25% of his gross salary in rent and a further 10% on heat and light. He pointed out that junior doctors lead a precarious existence, often relying on the "grapevine" for news of possible accommodation or on sympathetic consultants bargaining with Hospital Boards. Resentment was now widespread among junior staff; cynicism and apathy were rife. The economic advantage to employers of a contented staff and little wastage did not seem to be realised. The high cost of new buildings was put forward as a difficulty in providing accommodation. Would it not be possible to improve existing sub-standard accommodation? If it was possible to upgrade

wards, it should be possible to upgrade living quarters. If insufficient money was available, priorities must be set and consideration should be given to those who have families, or those who will only be at a hospital for a limited period.

In conclusion, Dr. Knight noted that holding a representative conference encouraged the belief that the problem of accommodation was at least being recognised.

Dr. D. Dingwall, recently a Senior House Officer at Victoria Hospital, Kirkcaldy, and now a trainee general practitioner, posed three main questions in relation to junior medical staff.

1. **When to marry?** The tendency was clearly for earlier marriage despite adverse conditions and dearth of suitable accommodation.
2. **Where to work?** A decision about this had to be taken before graduation. Some senior hospital staff appear to feel that only the job should matter and long, irregular hours be accepted. The young doctors of today, while interested in their work, also wished to be able to devote a certain amount of time to their wives and families. For the dedicated academic, single men the teaching hospital was obviously the answer, but much less so for the average married man seeking experience either with a view to entering general practice or further training in a specialty. Young doctors should not have to make a decision between general practice and a career in academic medicine and research so early in their career—even before qualification.
3. **How to find the money?** Life was much more expensive for a married House Officer than a single one. The married officer might have to pay for board and lodging in the hospital and maintain a home outside. This had a direct effect on the selection of places of work. His decision was not based on the merits of the job but on the financial implications.

Dr. Dingwall noted that wives were not welcomed in residencies or commonrooms and tended to be regarded as trespassers. Yet "separation" could not be regarded as a suitable definition of "marriage".

The establishment of married quarters at hospitals would abolish many of the problems of married staff after graduation. In future planning authorities would have to allow for this. If accommodation was available the choice of job would depend on the merits of the post rather than on living conditions. The question of separation would not exist. The financial burden would be lightened and mobility increased. The accommodation provided should afford married staff privacy and quiet, together with facilities for study.

DISCUSSION

The discussion was opened by Dr. M. D. W. Low, Assistant Dean, Faculty of Medicine, Edinburgh University. He noted that an atmosphere of discontent among young hospital doctors led to some disgruntlement amongst undergraduates. This not only had an unsettling effect on their studies but could lead to a search for escape routes after qualification.

Current policy to meet the doctor shortage by increasing the intake of students could not be the whole answer. The National Health Service was one of the largest employers and enlightened employers should seek to have a contented staff. There was clearly an urgent need for action in the provision of suitable married accommodation for junior doctors at or near hospitals. It was encouraging to note, however, that some authorities—notably in peripheral areas—had recognised the problem and were taking steps to provide for junior doctors with their wives and even for some senior medical students.

Nineteen members of the audience contributed to the subsequent discussion and the following main points emerged:—

1. **Priorities**
   More than one speaker emphasised that junior medical staff formed a most important group in the hospital service. While it was true that the number of vacancies should be considered in the light of the increased number of posts, there was no cause for complacency—efforts to improve the housing situation should demand a high priority to ensure adequate medical staffing. The seriousness to the hospital service of adding housing difficulties to the other problems facing young married doctors had become manifest. The possibility of removing certain types of staff from accommodation at the hospitals, e.g., matrons or engineers, whose work was more or less permanent at a hospital and who might be expected to obtain suitable accommodation in the area, was noted as a means of releasing existing accommodation for adaptation and re-allocation of junior medical staff.
2. **Finance**
   Recent efforts to improve the housing situation at hospitals had been affected by the lack of adequate finance, either from endowment or central sources. To secure suitable accommodation in the open market at a reasonable price was a major problem, particularly at a time when there were many urgent priorities. It was noted, however, that there were elements in the "balance sheet" concerning the housing of junior medical staff which represented important, if concealed, assets. Many young doctors' wives were trained radiographers, physiotherapists, medical social workers, occupational therapists, or nurses, and might be available for work at the same hospital as their husbands.
   Mention was made of one attempt to develop a Housing Association using endowment funds. This had been based on experience in Northern Ireland and, while accepted in principle, had proved impossible to implement for financial reasons. It was generally agreed, however, that investment in property was unlikely to depreciate.
3. **Lack of a uniform policy**
   It was noted that central authorities and Hospital Boards did not appear to have a clear-cut policy on residential accommodation for medical staff. Much that was attempted was of an *ad hoc* nature using endowment funds where available. It was represented that the position was now too critical to be dealt with in this way.

4. **Communications**
There appeared to be a serious lack of communication between the Hospital Boards and the junior hospital doctors. Current regulations relating to removal expenses, the setting of rents etc., might not be fully understood and the attitude of senior medical staff to the housing problems of young married doctors was not always helpful. It was suggested, at the same time, that the case for improvement in the housing conditions might in fact be harmed by overheated comment.

5. **Categories of staff**
It was the general opinion that House Officers, Senior House Officers and Registrars were the groups mainly requiring accommodation at or near hospitals. Accent should in future be more on the provision of married than of single quarters, i.e., the reverse of the current position. In general it was thought that Senior Registrars were likely to be in a post for considerably longer periods and at salaries which would enable them to make independent housing arrangements.

6. **Type of accommodation**
It was stressed that elaborate accommodation was not necessary. What was essential was that it should be flexible in the way in which rooms could be allocated to suit different categories of staff. In one scheme for a major teaching hospital it was proposed to provide residential accomodation about five minutes from the patient care areas and in addition 18/20 overnight stay beds for staff on duty.

7. **Cafeteria**
There was a firmly expressed view by junior doctors that those compulsorily resident at a hospital should not be required to use the general hospital cafeteria for all their meals, particularly breakfast and dinner. It was noted that future policy might include charging only for meals taken in hospital. This "pay-as-you-eat" system would be an advantage to all resident staff.

8. **Building Notes**
The effect of the provisions of Hospital Building Note 24 would be awaited with interest though misgivings were expressed by some speakers. Hospital Building Note 11, on Kitchen and Dining Rooms, might require amendment if some form of dining accommodation was to be reserved for compulsorily resident medical staff.

9. **Siting**
It was stressed that junior doctors who were not compulsorily resident at hospitals also required access to hospital library facilities and, in addition to proximity to the place of work, this dictated the most suitable location of housing. A maximum distance of three miles was quoted. Where suitable accommodation or a building site near a hospital was not available a high density of residential accommodation might result. This was noted by an architect as a possible cause of discontent in future.

10. **Rent and subsidies**
There were important advantages in having a suitably housed and contented staff. It was considered that while rents should relate to those current in the vicinity, a full economic rent might not be practicable. The view was expressed, however, that any level of subsidy should not be such as to inhibit future discussions on the salary structures.

April, 1966

FIRE PRECAUTIONS IN HOSPITAL PLANNING

The effect of fire precautions on hospital planning is important. Requirements can, however, be variable and the degree of risk in different areas of hospital accommodation is uneven. In ward units the strict application of certain criteria may disrupt functional groupings. Points of this type were raised and discussed at this conference.

Mr. R. E. C. Johnson, Secretary of the Scottish Home and Health Department and Chairman of the Council of Management of the Scottish Hospital Centre, took the Chair at a conference and discussion on the effect of requirements for fire prevention on hospital planning. He noted that while statistics were not collected separately in respect of hospitals, the records for 1964 showed there were 50 fires in Scottish hospitals. Of these 34 were confined to one room, 10 were restricted to the appliance in which they originated, and 6 had spread beyond the room in which the fire had originated. Although the incidence of serious fires in hospitals was small, hospital planning had a part to play in reducing these risks to a minimum.

Mr. J. Pollock, Senior Architect, Scottish Development Department, outlined the background to the Building Standards (Scotland) Regulations 1963 which, in relation to fire prevention, were designed to provide for both precision and flexibility. Certain mandatory requirements were given in broad terms in relation to different functions and there were a number of specifications which, while not obligatory, represented useful and acceptable standards.

Mr. Pollock noted those parts of the regulations which had a direct application to hospital building. He discussed the compartments which might be required, "occupant capacity" of such groups in relation to escape and ventilation, and structural fire precautions. It was recognised that hospitals were unusual in relation to risk to patients who were incapacitated and that escape requirements could not ensure complete safety; a certain degree of risk had to be accepted. He said that the regulations remained under review and amendments might, for example, permit jointed (as well as jointless) suspended ceilings and affect the enclosure of stairways.

Mr. J. Robin, Senior Architect, Scottish Development Department, explained that Hospital Design Note No. 2 "Protection against Fire", contained useful guidance and extended the requirements of the 1963 Regulations, particularly as regards compartmentation. He commented on the areas of high fire and high life risk and the question of communications, stressing the requirement of a horizontal travel distance not exceeding 100 ft. in one direction, or 40 ft. if referring to a "dead end".

Mr. Robin illustrated the application of the regulations by reference to diagrams of different types of ward floor. He explained the effect on ward design of grouping areas of under 15,000 sq. ft. as one compartment each containing not more than 40 beds. He discussed the problems arising from the location of fire-check and fire-resisting doors, the need to provide access to external walls for fire fighting vehicles, and difficulties in relation to vertical developments over a podium.

Mr. R. W. Dunn, Senior Fire Prevention Officer, South-Eastern Area Fire Brigade, stressed the fact that the majority of fires were caused by carelessness and that, despite efforts on the part of the fire service to educate people to take the necessary precautions, it was impossible to prevent all fires. In general, hospitals were not assessed as high *fire* risk but as a high *life* risk.

The fire service aimed at the preservation of life and property by preventing fires, reducing their numbers, recommending measures to ensure that fires could be limited to the smallest possible areas, and by ensuring adequate escape facilities and easy access for fire fighting equipment.

Mr. Dunn emphasised that hospitals were unusual in the variety of types of work undertaken. In addition to the difficulties which might arise from any degree of panic in patient-care areas, the evacuation of infirm, incapacitated, and sometimes sedated patients, there were industrial hazards from such areas of hospital activity as kitchens, laboratories, pharmacies and stores. He stressed the importance of training staff in the requirements of fire prevention, the best planning was valueless if it was not understood by those working in particular situations.

Mr. N. R. J. Johnston, architect, of Messrs. Boswell, Mitchell and Johnston, expressed the point of view of an architect currently involved in hospital planning. He illustrated his experience by reference to the ward block being developed for the District General Hospital at Dumfries. Noting that hospital design was a long and complex process, he emphasised the importance of liaison between the architect and the fire prevention officer at an early stage. Although compliance with the 100 ft. criterion for travel distance raised difficulties, particularly in a linear ward design, many of the planning conclusions reached on other grounds had coincided with the requirements of the regulations relating to fire. He considered that evacuation of patient-care areas by vertical means would present serious difficulties, but that it was a useful concept to regard different hospital departments as fire compartments. In his view the human element and ducts carrying services were the main contributors to the breakdown of fire precautions. He suggested that a diagrammatic method of illustrating fire prevention requirements might be developed to assist in the instruction of staff.

Mr. E. L. Taylor, Regional Engineer, Eastern Regional Hospital Board, Dundee, giving the engineering point of view, emphasised that cost played a large part in the development of any hospital project and that fire precautions had to compete with requests for other facilities. He referred to the large number of documents available for reference and, in particular, mentioned Hospital Technical Memorandum No. 16 which covered the engineering aspect of fire precautions in hospitals. It was important that the engineer should be consulted at an early stage in planning with regard to such factors as proposed structural compartments, the provision of lifts and ducts, the ventilation system,

the provision of emergency lighting and power and where the fire control point was to be situated in the hospital—a factor of particular difficulty in a phased project.

He considered that in certain areas, particularly in "deep" plans, a smoke risk might not be cleared in a reasonable time where reliance was placed on mechanical ventilation and the rate of air change was small. He noted that the movement of patients who were dependent on powered equipment or oxygen would present problems where service outlets were limited. In general, it was necessary to assess the risk and instal the appropriate protection. This included the introduction of suitable alarm signals in areas not occupied 24 hours a day. The importance of regular maintenance of fire alarms, telephone systems, automatic fire dampers, etc., was emphasised and the dangers arising from the changes in use of accommodation whereby, for example, there was an excessive use of socket adaptors. Mr. Taylor favoured central incineration as against the installation of local units. If it was intended to adopt local incineration, this should be decided at an early stage so that flues might be correctly designed. Another fact emphasised by Mr. Taylor was the importance of cleaning voids and service ducts before a new hospital was commissioned.

DISCUSSION

The discussion was opened by Mr. J. Deuchars, Regional Architect, Eastern Regional Hospital Board, Dundee. He noted that while fires led to alarming and dangerous situations, and that all reasonable precautions should be taken to prevent damage to life and property, they had not in the course of history been altogether harmful; they had provided opportunities to replace old and unsatisfactory buildings! He referred to the multiplicity and frequent duplication of publications on the subject of fire prevention and the need for a single, authoritative, condensed and practical manual as a guide to the design requirements.

The following were the main points which arose in the course of a spirited discussion in which 22 members of the audience participated.

1. **The effect of the application of regulations and design guidance on function**
   Areas of hospital accommodation were noted to vary widely in relation to fire risk and in the periods of time during which they were left unstaffed. It was considered that where a unit was in constant use and therefore constantly under observation, the need for certain requirements, e.g., the closing of fire check doors across corridors, was less necessary as a matter of routine. It was important, however, that staff in these areas should be thoroughly informed on the use of such doors when an actual situation of risk arose.

   The validity of the travel distance of 100 ft. was questioned by several speakers. It was accepted that in relation to ward design the need to apply this particular distance had to be considered against the effect it would have in dividing entities such as nursing charges, particularly at night when the numbers on duty were small. The implications of the location of fire doors in relation to ward function should be clearly recognised and weighed against what might be a marginally increased risk, if any. Insistence on the 100 ft. criterion was likely to lead to difficulty in planning ward units, particularly those of a linear character and might lead to a trend towards small and uneconomic nursing charges. As nursing charges were the key element in ward design, there appeared to be important practical advantages in equating these with fire divisions on ward floors, i.e., an area containing some 30 beds for intermediate nursing care.
2. **Briefing, commissioning and training**
   Reference was made to the need for all members of staff to be thoroughly acquainted with the procedure to follow in case of fire. At present little instruction was given and, while serious fires in hospital were comparatively rare, it was essential that staff should know exactly what to do should the need arise. When commissioning a new hospital, members of staff should be made aware of the position and mode of operation of all fire fighting equipment, the location of all exits, and the procedure to be followed should it be necessary to evacuate patients from any part of the hospital.
3. **Liaison with fire prevention officers**
   Tributes were paid to the excellent co-operation which existed in general between architects and fire prevention officers, although exceptions appear to have arisen. Instances were given in which individual fire prevention officers set requirements in excess of the regulations.
4. **Early consultation between architect, engineer, and fire prevention officer**
   The need for architect, engineer, and fire prevention officer to meet at an early stage in planning a new building was stressed by several speakers.
5. **Danger from litter etc., left in service areas and odd corners**
   Litter left in service areas and odd corners by workmen should be cleared before a building was occupied. This was agreed to represent a fire hazard and it was accepted that such areas ought to be cleared, and kept clear of combustible litter. At the same time it was felt that efforts should be made in designing hospital buildings to avoid all possible places where litter could easily be overlooked.
6. **Danger from small cupboards**
   It was pointed out that small cupboards could be a fire danger. It was an easy matter for a fire started in a cupboard to remain unnoticed until it had reached sizeable proportions.
7. **Danger from changes in the use of rooms and the effects of demands for flexibility in use**
   In modern hospital design flexibility in use is frequently requested. This could cause difficulties in the positioning of fire fighting appliances, electric points etc. Flexibility of use may also give rise to problems in the design of laboratories if some rooms have particular fire hazards. An assumption that laboratories fell into two categories: service laboratories, which carried less fire hazard;

and research laboratories with a high fire danger rating, was not accepted. It was noted, however, that if all rooms which might be pressed into use as laboratories had to be planned as such from the outset, this would increase the cost of fire protection.

8. **Smoke and heat detectors and fusible links**
Different opinions were expressed on types of detector and on fusible links and it was pointed out that in practice these devices did not always work satisfactorily. The view was expressed that in hospitals money could be saved in respect of expensive mechanical detectors if staff were trained to close all fire prevention doors. On the other hand, an incident in the United States was cited where fire detecting apparatus which could be watched from a central monitoring point and was linked to closure of air inlets had cut down labour costs sufficiently to pay for the installation of the machinery. This installation had proved effective in an instance of actual risk.

9. **Spread of smoke and fire via ventilating systems**
Systems of ventilation could transmit smoke and flame leading to difficulty in location of the source of a fire and facilitating the spread. These factors should be taken into account when different types of ventilation were being considered.

10. **Power cut-offs and power operated doors**
The question of provision to cut off the power to any one section of the building was raised. While this might be practicable in relation to certain departments and had frequently been provided, for example, in individual X-ray rooms, the wiring would be complicated in areas where some power had to be retained for emergencies. It was essential that all power was not cut off simultaneously. With regard to power operated doors, it was noted that if there was a power failure, or power was deliberately cut off, these doors could, in theory, be opened manually. In practice, however, this was difficult as they were exceedingly heavy.

11. **Light wells**
It was noted that light wells were not debarred by the regulations in relation to fire risk.

12. **Access to external walls**
The importance of suitable access to external walls so that fire engines and other fire fighting equipment could be brought up, was stressed. In discussion, however, it was questioned whether access to external walls was necessary in cases where there were several protected stairways through which access could be gained to the building.

13. **Employment of a hospital fire officer**
The value of having a trained fire officer on a hospital staff was raised and it was represented that such an appointment would be justified in a large hospital where training, maintenance work and the checking of fire hazards added up to a substantial routine commitment.

Summing up, the Chairman noted that there had been a most useful exchange of views. There had been much agreement but areas of conflict remained, for example, in relation to the size of nursing charges and the assumed travel distance for emergency use. He noted that the regulations and instructions remained under review and hoped that any revision would meet the varying requirements concerned.

May, 1966.

DISPOSAL ARRANGEMENTS IN HOSPITALS

The volume and variety of items for disposal from hospitals, whether for processing and re-use or for destruction, is widely underestimated. Not only is an efficient "disposal" system a service of considerable size, it is of great importance in the field of general cleanliness and the control of infection. At this conference the subject was examined from various points of view.

Mr. J. K. Johnston, Secretary of the Eastern Regional Hospital Board, Dundee, and a member of the Council of Management of the Scottish Hospital Centre, took the Chair at a conference and discussion on disposal arrangements in hospitals on 17th June, 1966. Some fifty architects, bacteriologists, engineers, medical and lay administrative staff, nurses, and work study officers were present.

Mr. W. A. Brown, Principal Assistant Secretary, Western Regional Hospital Board, spoke on the broad principles of supply and disposal. He noted that if all used materials could be disposed of the problem would be greatly simplified, but as certain items could be used many times they required to be kept separate from material for destruction.

Survey data on the daily requirements to wards and departments from central supplies and on the "waste" to be removed were presented. In a hospital of 350 beds, for example, about 1¼ tons of soiled linen, ¼ ton of dressings, and ¼ ton of food waste were produced daily. While the bulk of this material went for disposal, a large quantity of soiled linen required to be reprocessed. This represented the main problem. With the exception of food waste, there was little likelihood of a reduction in the quantities to be disposed of and, indeed, this was likely to increase in future.

Mr. Brown stressed that while the actual process of disposal might be a relatively simple matter, the movement of the items to be disposed of was more difficult. He listed and discussed the factors to be considered: efficiency, speed, economics, and the safety of patients and staff. It might be easy to have an efficient but expensive method of disposal; it was more important to achieve an effective system which was also economic. Speed was important for aesthetic reasons as well as to reduce the risk of infection. He compared the cost of portering services and the installation of a chute system for linen, noting that though gravity was free, chutes had their problems. As a portering service would be required for some items, its extension to linen might be less expensive than anticipated. He pointed out, however, that with rising costs, such services were likely to prove an ever-increasing charge. Lifts were unlikely to provide as good a service as chutes: there were problems of capacity and waiting times, though a cheaper type of lift might be a possibility.

Mr. Brown also spoke of the siting of incinerators. He considered that central incineration was preferable to destruction at ward level.

Miss M. Bourne, Matron, Glasgow Royal Infirmary, spoke of the difficulties caused by the use of disposables. It was necessary to have adequate local and central storage space with effective means of disposal at ward and hospital level. She stressed the need to make decisions on disposal arrangements at an early stage, and the need for uniformity in the use of disposables and in disposal arrangements.

Miss Bourne gave a detailed description of experience at the Princess Alexandra Hospital, Harlow, and of the disposal arrangements in three different types of hospital in the group for which she had been responsible. There was no incineration at ward or departmental level. The main incinerator was able to deal with everything except tinfoil and glass. These items were separated from disposable refuse and collected twice weekly by the local authority. "Wastemasters" had been installed in kitchens and proved efficient.

The importance of training all staff in the use of disposables and of disposal systems was stressed, as was the necessity for close supervision. Miss Bourne also pointed out that, while there had been no saving in money, conditions for patients had been improved, over a period of two years, and the cross-infection rate had been reduced by 50% following the introduction of disposables and the careful supervision of disposal arrangements.

Dr. J. A. N. Emslie, Bacteriologist, Middlesborough, spoke of problems created by waste material and its disposal. In its diversity, its content of harmful bacteria, and as a potential hazard to health from contaminated articles, it came directly into the bacteriologist's purview. By way of illustration he reviewed the thought given at an early stage in planning the disposal arrangements at Addenbrookes Hospital, Cambridge, and discussed in some detail the system installed there.

To achieve hygienic disposal, Dr. Emslie emphasised the importance of suitable containers and effective closure. He stressed the importance of confining infected material to a single container and as little handling as possible. The handling of infected material increased contamination of air, clothing, surfaces and personnel, but when dispersal was minimal, low environmental contamination could be achieved.

Mr. A. Wotherspoon, Superintendent Engineer, Scottish Development Department, emphasised that "disposal" was not merely an engineering problem but the responsibility of many members of the hospital staff. He described and illustrated various methods of disposal and the siting of disposal equipment. A properly organised central source of disposal was best. This required a suitable pattern of collection and transportation and a satisfactory installation for incineration. He noted that the disposal arrangements must avoid risk, remove nuisance from noise and smells, and must not attract vermin. Mr. Wotherspoon showed slides of various types of disposal equipment installed at hospitals, both old and new.

Dr. V. G. Cattrell, Medical Physicist, Royal Infirmary of Edinburgh, demonstrated sources of radioactivity and spoke of the problems created by the need to dispose of radioactive waste material.

The main need was to protect patients and workers from radiation. This problem was mainly confined to large teaching hospitals because of the cost of the equipment required.

It was important that the rules laid down for the use of radioactive materials should be strictly adhered to. Only specially trained workers were allowed to dispense radioactive materials and this had to be done under carefully controlled conditions. He stressed the importance of well finished rooms with smooth, impervious walls, coved surrounds, welded PVC floors, and a satisfactory ventilation system. There should be special toilets, preferably foot operated and with an adequate flush, for the use of patients receiving therapeutic doses of radioactive agents. Patients undergoing therapy of this kind should be segregated in small wards. Where diagnostic doses were used, care was also necessary in dealing with excreta.

Mr. W. Carmichael, Deputy Manager of Edinburgh Corporation Cleansing Department, spoke of the part played by local authorities in the disposal of waste material. While the method of choice was incineration, the principal method in use was controlled tipping. Most hospitals nowadays stored refuse in galvanised steel bulk containers, but some hospitals, because of lack of space, used a variety of receptacles, including small dustbins. He noted that the local authority was responsible for the collection of radioactive waste and emphasised the need to see that this waste was rendered safe before collection. The hospital concerned must provide a certificate stating that the radioactive material for collection met certain conditions. The Public Health Department monitored the bins before they were collected. In Edinburgh no charge was made to hospitals for the removal of waste material.

DISCUSSION

The discussion was opened by Dr. H. G. Smylie, Consultant Bacteriologist, Aberdeen Royal Infirmary, and 22 members of the audience took part.

Dr. Smylie drew attention to the fact that what might prove simple in theory could be complex in implementation. The requirements of new hospital planning were in many respects distinct from what was practicable in the adaptation of older units. In all units, however, the disposal of waste was linked to the infection risk and this, together with many obvious and less apparent implications, had to be taken into account when detailed cost comparisons between alternative methods were made. He supported the concept of isolating infective material at source. As regards the final disposal of certain items, Dr. Smylie cited the problem of incinerating large quantities of certain plastics. He noted, however, that while the bulk of waste was increasing in urban areas, there was evidence that it contained a lower proportion of organic matter than formerly and this might have a beneficial effect on its infectivity in relation to various systems of disposal.

In the course of discussion the following were the main points to emerge:—

1. **The need for a more uniform approach**
   Several speakers noted that the acceptance of different systems of disposal or a change from one system to another carried important implications for the architect or engineer. While the method to be adopted was affected by whether new or old accommodation was under consideration and whether in a new project a multi-storey block was being developed, there was a need for greater clarity over the essential principles involved. It was particularly important to decide on types of conveyor and methods of transport at an early stage in planning new units.
2. **Cost**
   In the end, this was the most important factor and required careful assessment. Many underlying influences were related to cost; some factors were difficult to estimate, e.g., improved levels of amenity and the extent of the contribution made towards the control of infection.
3. **Secondary problems**
   It was noted that piecemeal improvements might lead to other difficulties. The whole sequence of activity—supply, use and disposal—required study. In one instance the provision of grinders for unused food had led to an infestation with rats. The effect on the drainage and sewage systems of bed pan destructors required to be checked before their installation. The emission of chlorine gas from the incineration of plastics required attention to the outlet vents.
4. **Containers**
   The diversity of containers should be reduced; this was part of the question of obtaining uniformity. At present there was an unnecessarily large range of bags, bins, and boxes each in a variety of materials and in different sizes. This could be simplified.
5. **Disposables**
   The value of the increased use of disposable items was endorsed and further developments were envisaged. Important policy decisions were necessary before their introduction on any large scale and particularly if their cost was to be offset by economies in equipment, etc., which the disposable items should render unnecessary.
6. **Chutes and Disposal Points**
   Several speakers commented on chutes, their types, location, advantages and disadvantages. The general view was firmly against sluicing linen at ward level prior to despatch by a chute and there was only support for "sorting" at ward level insofar as it might be inherent in placing items in different types of container during a particular procedure. The removal of linen by chute was favoured but this method was not accepted for hard or breakable items. It was considered that the design of a chute must be simple and robust, the bags should not fill the chute thus avoiding a pumping action, and no loose items should be admitted. Ventilation of a chute at the top, either naturally or mechanically, could create negative pressure in the chute and reduce the problem of air leakage into disposal systems via the hatches. The hatches themselves could be designed to prevent this leakage but they must be simple and reliable in use or they would not be used as intended.
   The location of the disposal point was discussed and the nursing preference was that it should be in direct relation to the disposal (dirty utility) room. If centralised on a ward floor,

transport to it of the linen bags would require to be met several times a day on a seven day week basis either by the domestic staff or the portering service. The transport of bagged material outwith the bed areas was not accepted as a nursing duty.

7. **Lifts and Elevators**
It was considered that with efficient "bagging" or "boxing" there was no need to designate lifts as "dirty" or "clean".

While clean and sterile material could be brought to a ward unit and stored for a period, this did not apply to used materials. It was therefore necessary to envisage suitable periodic removal of such material and one suggestion was the use of a digiting elevator for hard materials together with chutes for soft articles. A digiting elevator could be either fully or partly mechanical. Machines of this kind were not yet available but this type of development was suggested as a reasonable possibility.

8. **Cross infection**
It was stressed that efficient "disposal" was an important factor in controlling cross infection and, in particular, the importance of protecting nurses' hands from infection was emphasised. This required good technique in the carrying out of nursing procedures and the avoidance of "sorting" of infected articles.

9. **Infectivity to handlers**
It was considered that with reasonable precautions the danger to domestic staff, porters, and local authority workers from material used in hospitals was extremely small.

10. **Laundry**
A plea was made for a reduction in the variety of items as an aid to the elimination of "sorting". In selecting materials for hospital use "washability" was important if, e.g., woollens could be eliminated there would be less incentive to "sort". Similarly, the use of white articles or fast colours would be a considerable advantage.

11. **Radioactive materials**
A real hazard might exist in the use of therapeutic doses, care was also required in situations where diagnostic doses were given. This involved the use of a separate, marked toilet, preferably with a foot operated flush of adequate volume. Suitable facilities would not be available in many ward units and it was therefore important that patients undergoing therapy with radioactive materials should be grouped in suitably equipped units.

As regards the disposal of specimens, it was considered preferable for urine to reach the drainage system quickly and not to be held, e.g., in carboys, to allow a period for radioactive decay.

12. **Types of incinerator**
The importance of having incinerators of sufficient power was stressed. The balance of opinion was in favour of central incineration as against the use of incinerators at ward level. Differing experiences in the capacity of incinerators to deal with large volumes of plastic material were related.

The Chairman thanked the speakers and those taking part in the discussion. He noted that while the question of cost had recurred throughout the exchange of views, and was undoubtedly important, much might be achieved in existing hospitals without excessive expense by a careful review of the problem as part of the whole supply and disposal sequence. In new hospitals it was important that policy decisions should be taken as regards the system of disposal at an early stage in planning if the architect and engineer were to avoid late and often unsatisfactory alterations at an advanced stage in planning.

Mr. Johnston noted the importance of training as part of the essential organisation of hospitals. Staff involved in " disposal " should understand what to do, how to do it, and why certain procedures were required. This with intelligent supervision, was the basis of a consistently satisfactory service.

June, 1966.

THE PATIENT'S POINT OF VIEW

It is wrong to suppose that the patient's view of the hospital service is only a series of complaints—though these are not infrequent and are often justfied. Constructive suggestions should be welcomed from any source and at this conference many points were presented by speakers and emerged in discussion which deserve the most careful attention by those concerned.

Mr. R. A. Raffan, a member of the board of Management for Aberdeen Special Hospitals, and of the Council of Management of the Scottish Hospital Centre, took the chair at a conference and discussion at the Scottish Hospital Centre on Friday, 23rd September, 1966.

Four speakers outlined aspects of "The Patient's Point of View" to an invited audience including medical, nursing, administrative and other interests.

Mrs. W. Raphael, an industrial psychologist and research consultant to the Royal College of Nursing, stressed that to correct defects from the patient's point of view, it was necessary first of all to find out the priorities as they saw them. These might not be the same as those set by the members of the staff or management.

A survey carried out in four London hospitals had given interesting and important information on the patient's requirements and provided a marked comparison between them and the assessment of patient's needs made by others. Each hospital had 300/400 beds and a nurse training school, but none was a teaching hospital for medical students. The findings at each of the four hospitals were similar and it was commonly found here, as elsewhere, that most patients hesitated to criticise, partly from a sense of gratitude but sometimes from an entirely mistaken fear of "reprisals".

In the survey nine wards—the same types in each hospital—were selected at random and all patients over the age of 16 who had been in these wards for more than four days were interviewed. Interviews were unstructured and questionnaires were not used. Confidentiality was particularly stressed. Members of the nursing and medical staff in these wards were also interviewed, as were a random selection of other staff, together with members of the hospital management committee. It was, of course, recognised that the vocal patient was not always typical and those who undertake surveys of this kind must recognise that it was only by painstaking work that the view of the "average" patient was obtained.

Three-quarters of the patients expressed satisfaction with the treatment they had received in hospital, the group of patients who complained the least were the elderly. Male surgical patients were happier than male orthopaedic patients or those in gynaecological wards. The socio-economic status of patients was not always easy to determine but the highest and lowest social classes tended to be the happiest: those in the "middle" group were most prone to complain. It was particularly interesting to note that many problems were projected on to the meals and, while all patients seen were having approximately the same food, those who were unhappy in hospital for other reasons tended to complain most about the food. It emerged clearly that factors affecting the day-to-day life in the hospital—amenities, food, visiting, etc.—were more important in the patient's estimation than the actual physical environment and significant to note that such factors tend to cost least to change. Boredom was a frequent complaint and most felt that more should be done to assist patients to pass the time. In general, medical and nursing staff received favourable comments from patients who frequently, however, expressed concern for the nurses in relation to conditions of work and the amount of work expected from them. This attitude of pity and sympathy for the nursing staff rather than one of respect was considered most unfortunate. Another interesting observation was that the medical hierarchy was seldom understood. Surgical staff were sometimes regarded as "unqualified" owing to the title "Mr.".

The physical environment was not, of course, unimportant. Most hospitals were built when patients were kept in bed during the course of their stay. The trend in modern medicine was to have an increasing number of ambulant patients and even in "acute" wards half or more of the patients might be out of bed for part of the day. Lack of day space was a frequent cause of complaint and where patients had a small area to which they could retire and chat as a group, the general atmosphere appeared to be more content. Many adverse comments related to the sanitary annexes—lack of privacy, no locks, wash-hand basins in a row without suitable screening, no shelves for toilet bags, no hooks for dressing-gowns, and mirrors too high for patients in wheelchairs. Many such defects could be easily remedied and it was suggested that even a short period of residence in wards of this kind by influential members of the hospital staff might be salutary! Unsatisfactory bed area furniture was noted and points of detail such as the type of sheet that kept "rucking up" were commented upon by patients. The question of visiting also arose and the importance of having a visiting period in the evening as well as in the afternoon was frequently mentioned. While unlimited visiting did not appear to be sought, some extension of visiting times would have been welcomed. Noise was less frequently commented upon than might have been expected and, apart from a lack of choice, comment on food was in general more favourable than otherwise. It appeared, indeed, that doctors and nurses complained about the patients' food more than patients did themselves. Complaints about the radio and TV service were frequent, many headphones were unserviceable and control points inaccessible. Again, programmes might be switched off when a doctor or matron had entered the ward. It was clear that mobile telephones should be available to patients during the morning as well as in the evenings.

In conclusion Mrs. Raphael emphasised that the things to which patients gave the greatest priority were frequently different from those the hospital staff of various grades, or hospital committees, considered on behalf of the patients to be the most important.

Dr. M. Gilmore, lecturer in the Department of Nursing Studies, University of Edinburgh, spoke on the findings of a survey of outpatient departments undertaken in Edinburgh hospitals a few years ago. In this enquiry a record form was completed by members of the hospital staff, both clinicians and administrators, and also by a sample of one-sixth of the new patients attending during the period of the survey. As a second part of the study, two groups of 30 general practitioners completed record forms giving information on, for example, the reasons for the referral of the patient; these general practitioners were also interviewed. In addition, a sample of patients referred by these general practitioners were interviewed with regard to their hospital visit, this being arranged through the practitioner. Finally, an examination of certain hospital out patient records was undertaken.

In general patients appeared pleased with the medical advice they had received and most complaints concerned waiting time in the out-patient department together with the length of time it took for the hospital authorities to communicate with the general practitioner.

Patients complained of lack of privacy and poor appointment systems. They disliked sitting in dressing-gowns in corridors, undressing cubicles—especially when shared—and when consultation or treatment were either seen or heard by other patients. Only about half the patients knew the name of the doctor they had seen and only about one-fifth knew his medical status. Of those who knew the doctor's name about one-fifth had been told it elsewhere than at the hospital.

The feeling was expressed that doctors in out-patient departments were too often in a hurry and that questions were not encouraged. While most patients had some idea of the diagnosis, many would have liked more information from the consultant, particularly as regards the probable duration of their illness.

Most patients who appeared before groups of medical students had had no warning of this and, particularly if partially undressed, had been embarrassed. None objected to the presence of students, though some considered they should have been asked to agree in advance.

The boredom from long waits was mentioned but seemed to be taken by many for granted as inevitable. Few expressed the view, or appeared to realise, that prolonged waiting periods might be due to faulty organisation. Apart from recognising that the appointment systems in force were frequently faulty, comments on out-patient departments were directed mainly to the inadequate and uncomfortable seating accommodation, the need for warmer and brighter waiting rooms, improved signposting and general communications within the clinic, for hot drinks and sandwiches, and the value of a creche for children.

The need for improved communications between the hospital and the general practitioner was noted both by patients and by the practitioners interviewed. Departments appeared to vary widely in this respect. Considerable embarrassment was caused when a patient was told to report to the practitioner for the result of a consultation and, even after several days, found that no communication had arrived. This referred particularly to letters connected with tests or procedures such as bronchoscopy. Patients were particularly anxious to receive the results of investigations of this kind.

Some general practitioners felt that they had lost their patients and that they had been taken over by the hospital out-patient department entirely. Most appeared to know that a patient seen at an out-patient department had been placed on a waiting list but only a small proportion of practitioners were informed by the hospital when the patient was actually admitted.

Long delays in obtaining an out-patient appointment caused considerable anxiety to patients and if a reversion to the old type of open commitment without any appointment system was to be avoided, additional sessions might well be required in particular specialties.

Miss J. U. Himsworth explained that a Health Visitor was in a unique position to obtain the patient's point of view. She noted that, while people were undoubtedly grateful for the care and attention they received during illness, they now had a greater sense of entitlement to service and were more inclined to express their opinions than was previously the case. It was unfortunate, however, that these opinions were not always presented to the hospital authorities who were in a position to consider them with a view to taking necessary action.

Miss Himsworth emphasised that while many hospital buildings were regarded as inadequate and outdated for efficient service under present day circumstances, this was by no means the greatest reason for discontent as expressed by patients. The physical environment was frequently commented upon but complaints arose most often from some failure in human relations. Much greater emphasis should be placed on efforts to teach young nurses and medical students the elementary rules of how to deal with people.

In general, the medical work in hospital wards and departments was highly rated and there was particular commendation of individual members of the staff who took time to explain situations. Where, however, the patient was talked about in front of a group, e.g., of medical students, or where doctors or nurses appeared to regard patients as "them", this was greatly resented. There was criticism of regimentation and hurry, but nurses were frequently excused as being "so busy". Patients often said that only nursing auxiliaries and ward maids had time to speak to them. All that the trained nurse might have time to say when giving an injection was "turn over"!

When short notice of discharge from hospital was given this caused considerable anxiety, especially to elderly patients and their relatives. Careless comments, particularly in maternity hospitals, caused resentment and confusion arose where there appeared to be contradictory opinions by different members of the staff. It was almost criminal for a patient in normal labour suddenly to be told that she was to have a forceps delivery as the bed was needed.

As regards the physical environment, many comments related to the poor design of toilet accommodation, the sharp change in temperature between the wards and the W.Cs., the disturbance in open wards when emergencies were admitted at night, and what were described as "long spells, half clad in claustrophobic cubicles" in out-patient departments. A factor noted by patients was that consultants were

not always punctual and that only occasionally was this likely to be caused by a medical emergency elsewhere.

Boredom was noted by many adults and in convalescence some would prefer a more domestic environment with normal types of bedstead. Visiting times were frequently mentioned and the need to have these at more suitable intervals and to have accommodation, e.g., day space, where patients and visitors might meet when the patient was ambulant.

It was wrong that patients had to return home to get a rest but this might arise from excessive visiting and also in maternity units where four or more mothers and babies shared a ward on a rooming-in basis. The small general practitioner maternity hospital was amongst the happiest types of unit.

The ward sister was, in Miss Himsworth's opinion, the key to the general atmosphere of the unit and to the training of young nurses. The influence of both medical and nursing staff of the right quality on the younger members of these professions was invaluable in teaching them how to handle people and by improving human relations to improve the patient's view of the hospital service.

Dr. R. M. McGregor, a general practitioner with many years experience in a busy country practice, felt that consultants and hospital staff, particularly in the cities, might be unaware of many of the problems facing the general practitioner and the patients from the rural areas.

Outlining the main statistics from his practice, the large number of patients who were elderly, the number requiring hospitalisation, and the types of hospital to which they had been sent together with the reasons for hospitalisation, he pointed out that those who had been most seriously ill were undoubtedly grateful to the hospital staff for the care and attention they had received. The less seriously ill patients, or those requiring prolonged bed rest, were prone to boredom in hospital and were more likely to be critical of the conditions. More attention was required to dispelling boredom where it occurred. Again, patients should be returned home as soon as they were ready for discharge. This did not always happen at present.

Patients were sensitive about not being treated as individuals and disliked medical or nursing staff not explaining why some procedure was being undertaken, or even that the procedure was essential to the diagnosis of the patient's particular complaint. While patients resented an iron discipline, they were quick to notice any laxity in hospital organisation and particularly any lack of supervision by the senior nursing staff in wards. It was also important to recognise that many patients were seriosuly apprehensive of the number of investigations which appeared to be required and this could amount to a real fear.

Most patients felt that the food in hospitals had greatly improved in recent years but some commented on the lack of variety and of the room for further improvements in its presentation. As regards sleep, Dr. McGregor considered that an excessive number of sleeping pills were issued; this view was reinforced by the way in which some patients made a collection of pills or destroyed them. It was true, however, that the old open hospital ward was not conducive to natural sleep. It was most important that the hospital authorities should attempt to reduce noise and disturbance to patients during the night.

Garbled accounts by patients of what had happened during their hospital stay or during their visit to an out-patient department were common. Wrong assumptions could easily be made from partially heard remarks. In some mental hospitals group therapy might involve a freedom in discussion which could prove embarrassing. There was room for patients or relatives to be kept better informed of the patient's condition and progress and the likely duration of the illness, together with some information of the investigation or treatment being undertaken.

More criticisms were voiced about out-patient departments than about ward units. It appeared that excessive numbers of patients were booked for particular clinic sessions and that effective appointment systems were seldom achieved. Patients were often over-tired from long journeys and long waiting times at the hospital. Frequently patients had to return more often than appeared reasonable and they might be upset if they did not see the same doctor at a subsequent visit or even, without any explanation, a doctor other than the one they had been told to expect.

In conclusion, Dr. McGregor noted the need for efficient communication between the hospital and the practitioner and commented on the fact that hospitals were still held in considerable awe by many patients and that this placed a great responsibility on all grades of hospital staff.

DISCUSSION

The discussion was opened by Professor J. Forfar of the Department of Child Life and Health, University of Edinburgh. He noted that the requirements and priorities of children in hospital were not necessarily the same as those the parents supposed them to be. Even babies could indicate their views and these appeared to relate mainly to food and to sleep. Toddlers could express their requirements more plainly and in general these added up to the fact that they wanted to be with their mothers. Older children were more complex. Three influences to be recognised were—their need for companionship, the importance of minimising discomfort and pain from injections, intubations, etc., and the question of status as expressed, for example, in their reactions to the type of bed or cot in which they were nursed.

Much improvement had been achieved in the question of visiting in children's hospitals and in the provision for mothers to be with young children. There now appeared to be a need for more study of the home environment both while the child was in hospital and after its return home.

Nineteen members of the audience took part in a general discussion during which many aspects of hospital work affecting the patient's point of view were mentioned; the main points were:—

1. **The human element**
   The over-riding importance of the human element was stressed by several speakers and the way in which good manners and consideration for other people formed the cornerstone of effective public relations. This applied to

all grades of hospital staff. It was noted that training in these matters was difficult but accepted that the most important influence was the example set by senior members, particularly those in the medical and nursing staff. Lateness, brusqueness, aloofness, thoughtlessness, and even colloquialisms such as "Pop", "dear", and "Dad" could give offence and even considerable distress to sensitive patients. Patients should feel that they were important as individuals and the removal of "corners" from any "squares" among the hospital staff was a serious and difficult challenge to those in authority.

2. **Communications**
It was submitted that improvement in correspondence between the hospital and general practitioner could be achieved relatively easily if effective secretarial assistance was available and especially, in the opinion of some consultants, by the appointment of unit secretaries. At the same time it was noted that verbal communications to patients or to relatives presented considerable difficulties. Suitable explanations were usually performed most efficiently by ward sisters but they were not always present when an explanation had to be given and junior staff attempting this might give a very wrong impression to a patient. Again, the need for improved communications between members of the hospital staff, for example between medical and nursing staff and the social workers, was not always as efficient as it should be. It was noted, too, that letters to the hospital by general practitioners were frequently inadequate and this might affect the quality of the reply.

3. **The need for a recognised channel for suggestions and comments**
Useful comments by patients which might lead to improvements in the service were likely to be lost if they were always regarded as complaints, or if there was no easily identified person to whom such comments might be freely made. It was noted that many patients were afraid to appear to complain. Again, the cumulative effect of small grievances, each of which the patient allowed to pass, was extremely bad for the hospital's reputation and the general patient/hospital relationship.

4. **Out-patient department organisation**
Several speakers referred to the ineffectiveness of existing appointment systems, to long uncomfortable delays, and to frustration on the part of the staff working either in grossly inadequate accommodation or in situations where suggestions for improvement appeared to find no effective outlet. A more active and direct interest in the management of out-patient departments was clearly required, and in new departments it was most important that planning should ensure that the traffic flow and the level of amenity and privacy for patients should be satisfactory. It was stressed by more than one speaker that the quality of reception was one of the most important features of out-patient department work. It was vital that this should be sympathetic and personal. It also seemed vital that someone should be in a position in a large out-patient department to supervise the whole organisation and to be able to take action with some authority either to change procedures or to represent the need for their change to other professional groups who might be concerned.

5. **Ward units**
Sharp criticism was expressed by former patients of the experiences they had encountered in the older type of "open" ward. The distress entailed by a patient's death, the disturbance from admissions or emergencies during the night, the influence of even one patient who snored, the effect on other patients of those returning from operations, the problem of unmuted TV, and the fact that most people did not now wish to be seriously ill in a large dormitory. Cold and unpleasant W.C. accommodation, inadequately cleaned baths, and noises due to floor coverings, cleaning machines, elevators, and even the magnification of small noises at night were mentioned. It was noted that night nurses were fully awake and might not realise that patients were in real need of quietness to sleep. It was also noted that some patients at a convalescent stage became seriously worried about patients more acutely ill in the same ward, particularly when these wards were obviously under-staffed at night. It was considered that the feeling of pity for nursing staff, particularly those on night duty, was not a satisfactory psychological situation for either patients or nurses.

6. **Diagnostic departments**
It was noted that it was not only in wards and out-patient departments that patients' reactions and sensitivities had to be studied. In X-ray departments, for example, patients might also be exposed to uncomfortable and even embarrassing situations, some of which stemmed from inadequate accommodation, but others related to the impersonal attitude adopted particularly by the more junior members of the staff.

7. **Visiting**
The need for more liberal visiting hours and, in particular, a period of visiting in the evening was mentioned and the need for suitable space in ward units either in the bed areas or in day rooms, where patients could speak with their visitors in private. A suitable visiting policy could help considerably in reducing the length of the patient's day and do so without seriously over-tiring the patient.

8. **Teaching**
It was generally agreed that great care should be taken to explain fully to patients what they might expect when they came before a group of students. In addition, teaching rooms must be at a suitable temperature if the patient was to be examined and it was also important that instruction should be given to students at an early stage as to the responsibilities they had in avoiding embarrassment to patients. Given that these conditions were met, it seemed most unlikely that patients would object to reasonable assistance by them in medical teaching, as they realised that this was essential to the training of new doctors.

9. **Old and new accommodation**
While it was accepted, and indeed stressed, that

there were examples of a contented atmosphere being achieved in apparently inadequate accommodation, it was the view of those who had moved from old wards to new units that this had a marked effect in improving staff morale and in reducing the number of complaints by patients. A consultant and a matron speaking from personal experience, emphasised how good conditions could help the staff and even compensate for a shortage. The effective use of colour schemes was valuable in creating a suitable environment.

10. **The importance of senior nursing staff**
More than one speaker commented on the importance of the ward sister, and the senior nursing staff in out-patient areas. Their work was as onerous as any in the hospital and they frequently became the butt of criticism—often unjustly. It was important that these nurses created the right image for junior nursing staff to follow and also that they received adequate support from the more senior staff of the hospital when they presented comments of their own for the improvement of the service.

11. **General practitioner maternity hospitals**
A consultant obstetrician noted that while general practitioner maternity hospitals were most important in certain areas, there were reservations about them in areas of large population as they might become equated with specialist units. They deserved every support provided they were suitably covered by specialist advice and that the bookings were carefully controlled.

12. **Accepting bad conditions too readily**
Some speakers considered that more impetus would be given to the provision of better hospital buildings if the public were not quite so tolerant of some of the conditions they now had to accept. It was recognised that, as time passed, patients would develop an increased sense of entitlement to better accommodation and an environment in which they could be treated with efficiency and safety and where a higher level of amenity would be provided.

September, 1966.

LIBRARIES IN HOSPITALS

The trend is undoubtedly towards the grouping of libraries at hospitals either physically or functionally and to employ qualified librarians. This does not mean or imply that a long tradition of voluntary effort is not appreciated nor that it cannot continue to be developed if the library service to staff and patients is better integrated and professionally managed. This conference had an objective of this kind in mind when various aspects of library work in hospitals were discused.

Dr. C. Bainbridge, Senior Administrative Medical Officer of the Western Regional Hospital Board and a member of the Council of Management of the Scottish Hospital Centre, took the Chair at a conference and discussion on "Libraries in Hospitals" at the Scottish Hospital Centre on 7th October, 1966. Over fifty doctors, senior nurses, administrators, librarians and other interested parties were present.

Mr. A. A. McIver, Secretary and Treasurer, Board of Management for Glasgow Royal Infirmary and Associated Hospitals, presented the subject from the viewpoint of a hospital administrator and from the point of view of the patient. Speaking of the general, and not the psychiatric, hospital, he asked whether, having provided the physical environment, the medical and nursing skills, and the necessary drugs and treatment for patients, the hospital should also be asked to provide reading material. Financial allocations did not take this sufficiently into account. Today's patient was more educated than hitherto and reading had become as essential as eating, drinking or sleeping. Again, patients lived in hospital under conditions of stress and books could provide a valuable outlet. The population was not generally inclined to buy books and the ability to borrow from a library became a necessary adjunct to hospital life.

In most hospitals book borrowing was made possible by voluntary agencies over whom Boards of Management had no control. The available books —a donated mixture of all kinds and ages—were taken on trolleys to the patients by volunteers or kept on a shelf in the ward and replenished periodically. In general, men preferred books of escape, travel, crime, adventure and Westerns, while women liked glossy magazines. Some patients brought their own books and often too many of them. Elderly patients appeared to like books with coloured pictures.

He suggested that auxiliary helpers should be knowledgable about books and reading habits and that suitable storage space and well designed book-trolleys were important as well as a good supply of books. Paperbacks gave good value for money; they were light to hold and could be preserved by adding a hard cover. It was possible too, to obtain talking books for those who were paralysed, and page turners, large print books, and books in braille for the blind.

While much devoted service must be acknowledged, the present library arrangements for patients in hospital were not satisfactory and money was unlikely to be spent on books for patients in competition with other hospital needs—even staff appointments. A Regional service might be a possibility and local authorities might take some responsibility for hospital libraries in their areas—though help from voluntary workers would still be required. If it was possible to have a fully integrated library service for the whole hospital community—doctors, nurses, and other hospital staff as well as patients—this would justify the appointment of professional librarians and permit a much developed service.

In conclusion, Mr. McIver referred to the question of cross infection. He felt there must be some way in which books could be made safe without destroying them, and, if so, it might be possible to merge the hospital with the wider community for library service.

Miss M. MacDonald, Director of Nurse Training, Western General Hospital, Edinburgh, noted a dramatic change in the concept of education. Formerly thought of as belonging to a special period of life and, like an infectious disease, something unlikely to be encountered twice, education was now regarded as a continuous process. This had its effect on nurse training. Schools of nursing used to train their nurses under the apprentice system in which they were largely passive recipients of knowledge. Little theoretical knowledge was required and a nurse's tools were simple—a bandage, bedpan, thermometer and a duster, and even a scrubbing brush. Today, student nurses are expected to take an active part in a carefully planned programme. With the advance of medical science and technological development the tools of her trade have become much more complex. Before starting training the would-be nurse must have a good general education, and there is no doubt that a good library was an essential part of any school of nursing.

The student nurse should be taught to develop a critical attitude to what she reads and not to accept all that is written at its face value. The library should help students to study their subject and gain an understanding of it in breadth and depth. Reading and reference material should be accessible for the maximum amount of time during the 24 hours. Books should be accommodated on open shelves and a good classification system was essential. The book stock should be up-to-date and there should be no inhibition about discarding volumes when obsolete. The texts should cover a wide range of subjects and include biographical and other fringe subjects in addition to the books necessary to the direct study of nursing. A good reference section was essential and should contain more advanced text books, dictionaries, reports on nursing and medical matters, and encyclopaedia. Periodicals and magazines should also be available, and also British and overseas nursing journals. Libraries in nursing schools should be for the use of the entire nursing staff and were far more than multiple copies of standard textbooks.

The administration of such a library was obviously a responsible job entailing a great deal of work: at present this was usually the responsibility of one of the tutors. The Royal College of Nursing had given assistance by running courses and publishing a library guide for schools of nursing. While the absence of a librarian was not a complete deterrent,

Miss MacDonald felt that this work could more suitably be undertaken by a trained librarian, and with the growth of group schools of nursing, professional assistance was required; some schools had already requested help of this kind.

Finance was frequently a burning question, but Miss MacDonald considered her training school had a reasonable allocation. She was critical, however, of the need to spend the allocation of money at once. Not all the best books were published at one time. Some augmentation of funds was obtained from the small charge made to users, fines for late returns, and gifts of book tokens.

In conclusion, Miss MacDonald emphasised that it was of little use to have an effective, up-to-date library if students were not competent to use it. Training in how to read and how to use a library was of the first importance.

Mr. J. S. G. Blair, Consultant Surgeon, Perth Royal Infirmary, said that the basic requirements of a hospital medical library were simple and essentially different from those for patients. It should be a source of authoritative information on all branches of medical practice and contain standard medical text-books as a nucleus for reference purposes. Complementary to these standard works were the journals and periodicals reviewing current thought and research. Such material was useful to consultant and non-consultant staff alike. The total number of standard texts could be reasonably small but the range of periodicals and journals should be as wide as financial resources would allow. Other monographs and histories were a useful reminder of other disciplines and the fact that the present day had no monopoly of medical thought. It was also important to have provision to borrow books from other sources and from larger libraries.

Mr. Blair emphasised that the medical staff must accept their responsibility toward the library. This was easier in small hospitals, but was also important in large teaching units. He considered the librarian should be a non-medical person of sufficient seniority to command respect from the users of the library. The choice of periodicals taken, the addition and removal of books and the mode of spending the funds available should be the responsibility of a library committee. Endowments were a useful source of money as available all the year round: the best books were not issued to suit the official financial year. Texts for particular specialties should be purchased after agreement by the library committee and retained for immediate reference in departments, though catalogued centrally.

Mr. Blair then turned to the location of the library and stressed that it should be central and quiet. He felt that the administrative block was probably the best situation. He pointed out that it should have dignity, warmth, no telephone, and should provide a pleasant atmosphere in which to work. It was important that the furnishings were of good quality. Such a library would be a significant attraction, especially to junior medical staff. General practitioners might also use the hospital library and it would also be of importance in post-graduate training. It might form a subdivision of a comprehensive hospital library under a professional librarian.

Mr. R. A. Sturt, Senior Lecturer, College of Librarianship, Wales, said that while he advocated the need for the professional librarian in running a comprehensive hospital library, he acknowledged the debt owed to voluntary workers in providing services in hospitals. At the present time, however, there was a haphazard provision of books with no clear thought on how expensive books and journals could best be used. Multiple, separate departmental collections with inflexible proprietors together with restricted services from public libraries were all too common. Money was spent by hospital authorities on literature required by staff, but unco-ordinated purchases were not economical and collections of books should not be confused with a library service! In future every hospital should have its reading needs met by a comprehensive library service in which professional librarianship could be associated with voluntary effort.

A modern hospital library service should offer:—

1. a library information service to all units of the hospital;
2. a service to doctors, trained and student nurses, members of supplementary professions, to general practitioners and professional "Health" workers in the area;
3. a service to technical staff working at the hospital;
4. a general service to patients and staff;
5. an after-care service linking the patient with library services outside the hospital.

There were, therefore, two main types of literature in an adequate library service to hospitals: medical and technical literature on the one hand, and a selection of general and recreational volumes on the other.

Mr. Sturt felt that the first step in the provision of efficient services would be a clear statement from the national health authority on the framework of an overall policy for the provision of libraries to serve all parts of the hospital community. The Library Association favoured provision of comprehensive library services for patients, medical and nursing staff, administrative and technical staff and all staff in training. These categories should be regarded as different aspects of an interdependent system. The service in an area should be controlled by a chartered librarian and it was noted that specialist papers in hospital librarianship for the examinations of the Library Association attracted a considerable proportion of student librarians. Many public libraries provided a joint service for patients and staff on an agency basis and offered a remarkable range of service.

A recent Northern Ireland Government report recommended the appointment of a libraries adviser to the Northern Ireland Hospitals Authority and that public libraries should provide a service to hospitals as an integral part of their work for the community at large. In England and Wales there was still some confusion under the 1964 Public Libraries Act. New legislation in Scotland would have the opportunity of defining clearly the service to be given to hospitals by local authorities.

It was the responsibility of the Regional Hospital Boards to provide an adequate hospitals library service. A Working Party at the Sheffield Regional Hospital Board proposed a complete regional library structure in June 1965. The Sheffield Board had given a lead and were likely to provide the first fully adequate hospital medical library service at all

levels in this country. Mr. Sturt referred to the National Library for Science and Technology which had the largest collection of medical literature in Western Europe: it offered an "on demand" service which was working well.

The Regional Boards should plan, establish and co-ordinate existing services and provide services where none exist at present. It was also important that there should be a professional librarian working at Regional Board level and possibly later at Boards of Management and even at the larger hospitals. The paramount need was a basis of management. Fragmentation and arbitrary divisions were wasteful and inefficient; a fully organised and comprehensive service should be the aim.

Mrs. W. M. Partington, Librarian at the Queen Elizabeth II Hospital at Welwyn Garden City, explained the position in that hospital. She stressed the importance of including library space in all plans for new and extended buildings and that advice from librarians should be taken. Qualified librarians were expensive and scarce but one professional librarian could supervise the whole library service in one hospital. Collections of books and other literature would be made, and these could not be organised, preserved and made available without a librarian.

The Queen Elizabeth II Hospital consisted of 420 beds, including a psychiatric wing. The library offered an integrated service to medical, ancillary medical staff, administrative and qualified nursing staff, and general practitioners of two districts. It was also used by the staffs of other hospitals in the group. The accommodation consisted of two rooms each of 400 sq. ft. and there was shelving in the medical library for 2,000 volumes and in the general library for 3,000. At the moment there was a medical book stock of 1,500 volumes and 50 journals were taken. Micro-filming was also available and it was probable that this technique would be extended in preference to binding.

Certain departments required books for frequent reference and retained such books after they had been catalogued in the library. This allowed such books to be located and made available to any other member of the staff who might wish to consult them. More than one copy of standard medical textbooks was purchased. One was kept for reference purposes only and the others placed on the shelves for general use.

No library could be completely self-sufficient and books were often borrowed from other sources. Local industrial concerns were generous in permitting members of the hospital staff to borrow from their libraries and lists of books available from these sources were kept in the library. Some 25-30 journals were borrowed each month.

A medical library committee assisted in the collection of the stock and in the formulation of the rules. The library was kept up to date by the purchase of new books; those costing less than £7 10/- were purchased automatically if requested by a Head of Department, but above this figure approval of the committee was required. The County Librarian and Regional Librarian were invited to meetings of the committee and Sister Tutor co-opted. The library of the nurse training school was a separate unit housed in the school but there was no reason why the libraries should not bc combined administratively. Nurses were permitted access to the medical library. The amount of material and information available, especially from the public library source, had caused surprise to the medical and administrative staff.

The advantage of an integrated library service to patients was now accepted. Voluntary helpers were given a training course, including the selection of trolley books, recording, and the correct approach to all types of patient. Cadet nurses also worked in the library for a short period; they gained experience and were useful helpers. Patients from the recently opened psychiatric wing visited the library and some gave useful assistance. The library was open from 10 a.m. to 5.30 p.m. five days a week and on three evenings from 6 to 8 p.m. Mrs. Partington felt that hospital librarians were occupational therapists of a special kind and that reading was a valuable form of therapy.

The librarian at the Queen Elizabeth II Hospital was on the staff of Herts. County Library, her salary being repaid by the hospital. This arrangement provided cover for holidays or sickness. The hospital provided the accommodation and equipment and paid £100 annually to the bookstock supply. Otherwise books came from the County Library which treated the hospital library as a small branch. The medical bookstock and journal holdings came from a capital grant from the Regional Board and were maintained by a grant from the hospital. This grant varied from year to year. but was currently £750.

DISCUSSION

The discussion was opened by Dr. A. Doig, Consultant Physician, Royal Infirmary of Edinburgh. He noted the importance of teaching all categories of staff how to use libraries and considered there was no reason why teaching hospitals should be radically different from non-teaching units in respect of library organisation. He agreed, however, that the first priority was to get the basis of management accepted. Dr. Doig noted the therapeutic role of reading for patients and enquired about the present position concerning the sterilisation of books handled by infectious patients.

Seventeen speakers took part in a lively discussion and the following were the main points raised:—

1. **The development of a comprehensive service**
   There was no dissent from the view that duplicated and fragmented collections were unsatisfactory and should, as soon as practicable, be replaced by a professionally managed system of central library administration. This might require separately located collections, e.g., at a nurses' training school, though subgroupings should only be agreed for sound reasons. All listing and cataloguing should be central and it would be in a unified concept oi this kind that advanced retrieval systems might be more fully applied.
2. **The importance of convenience to users**
   The location of the hospital library was of great importance. If remote from places of work its value would be reduced. Easy access during the evening was important to those studying for examinations or undertaking research.

Training in the use of libraries
The need for this was accepted and noted to apply not only to junior staff; academic staff of considerable seniority might be unaware of the potential of a well organised library service. Many left school with little or no experience of the use of libraries, with poor reading habits, and restricted reading ability.

4. **The desirability of having more trained librarians**
Amateur workers were helpful and likely to be required for many years, but no more likely to be successful in the field of professional librarianship than in any other specialised work. It was noted that a skilled librarian could provide a better service with a relatively small but well chosen stock than an untrained worker could with a much larger collection. It was suggested that every hospital library should take *Index Medicus*.

5. **Library design**
It was important to base the layout of new library accommodation on a clear statement of the functional requirements. In general, reading rooms should be apart from service areas, sound reduction should be planned for—acoustic ceilings, carpets etc., and in general, rectangular units were preferable to circular designs. Planning must always allow for expansion. There was agreement that a suitable atmosphere, quietness, well designed furniture and effective lighting were of great importance.

6. **Copying and copyright**
It was noted that libraries could supply photocopies of published items provided the copyright Regulations (S.I. 1957, no. 868) were observed. Readers were required to sign a statement that the copy was for their own personal use, but there seemed to be wide variation in the charges made.

7. **Sterilisation of books**
It was noted that, according to the Director of the Public Health Laboratory Service, the few methods of achieving effective disinfection within a reasonable time and without causing damage to the books were expensive, difficult to control, or in the case of irradiation, available in only a few centres. The risk of infection from library books was so slight, however, that in most circumstances it might be safely ignored. Nevertheless in certain instances (where a case of smallpox had occurred, where patients were known to suffer from open tuberculosis, or where they were visibly contaminated) books should be destroyed. (Ref.: *B.M.J.*, 1965, Vol. 2, page 1354.)

8. **The links between hospitals, local authorities and voluntary effort**
While much goodwill appeared to exist, the precise role of the local authority appeared to require clarification in relation to hospital library services in the area. It was clear that the present voluntary effort was greatly appreciated and that such assistance would continue to be required for many years.

9. **The need for a Working Party under Scottish Home and Health Department auspices**
It was suggested by a public librarian that there was need for a Working Party to examine the various interests concerned and to suggest how the questions of organisation and finance could be tackled and to make practical proposals. Recommendations should be incorporated into the new legislation for public libraries which was being prepared.

10. **The need for initiative**
It was considered that while initiative as regards the broad policy requirements of the hospital library service should come from the Scottish Home and Health Department, it was more appropriate for Regional Hospital Boards than, e.g., Universities, to take the lead in reviewing, implementing and developing an effective and integrated service in their areas. It was noted in this connection that, with financial assistance by the Nuffield Provincial Hospitals Trust, a survey of the present position of library work in hospitals in Scotland was to be carried out in the near future by the Scottish Hospital Centre.

October, 1966.

PRESCRIBING AND ADMINISTRATION OF DRUGS IN HOSPITAL

It might seem to the uninitiated that the supplying, prescribing, recording and administering of drugs should not raise problems, but they exsist and affect a vital part of the hospitals' work. An Aberdeen team presented the results of their work at this conference. A far-reaching and lively discussion ensued.

Dr. J. H. F. Brotherston, Chief Medical Officer, Scottish Home and Health Department, and a member of the Council of Management of the Scottish Hospital Centre, took the Chair at a conference and discussion on "Prescribing and Administration of Drugs in Hospital", at the Centre on Friday, 21st October, 1966.

In Aberdeen, workers had been undertaking research into the standardisation of procedures involved in the prescription and administration of drugs in hospital. Introducing them to a widely representative audience, Dr. Brotherston drew attention to the value of good team work and the benefits which could accrue from the application of skilled research into operational problems.

Dr. J. Crooks, Reader in the Department of Materia Medica and Therapeutics at the University of Aberdeen, introduced the subject by considering prescriptions. These inaugurate the whole sequence of events. He stressed the effect of the pharmacological revolution, the large number of drugs now available, failures of communication, the influence of work-loads and of staff shortage, and referred to factors which amounted almost to a crisis in confidence in the handling of drugs.

The research at Aberdeen had started with the discovery of an error. Investigation had shown a remarkable variation in treatment charts, medicine lists, and in the transcribing procedures carried out by the nursing staff. The analysis of 400 prescriptions taken at random in Aberdeen and 258 in Belfast showed a remarkable similarity. The percentage of discrepancies in Aberdeen was shown to be 22.5 and in Belfast 19.8.

The Aberdeen team suggested five basic principles to prevent errors in transcription.

1. Drugs should not be administered without a written prescription. This also applied to, for example, aperients, mild analgesics and alkalis.
2. A signed prescription should be recorded on a standard form which was also used as a medicine list to avoid transcription errors. Different sections to be reserved for "regular" and "once only" administration and also for parenteral and other drugs.
3. No abbreviations to be used and times of administration to be indicated.
4 Special provision to be made for prescribing drugs such as insulin and anticoagulants.
5. A standard method of drug recording, based on the Aitken Report of 1958, to be adopted.

Referring to the article in the *Lancet* of February 13, 1965, in which the development of the work in Aberdeen was described, Dr. Crooks noted that a continuous process of experimentation and trial of the necessary documentation had been undertaken. Initially some opposition had been expressed, particularly by senior nursing staff who felt that part of their traditional role was being threatened. In the wards selected for trials co-operation had been good and a standard, flexible form evolved. This also led to a significant saving in nurses' time.

A Pharmaceutical Services Committee was formed with the following duties:—

1. To supervise and evaluate the present system for the prescription and administration of drugs.
2. To develop a satisfactory and acceptable recording system.
3. To investigate and develop a system to ascertain the side effects of drugs.
4. To investigate ways in which the pharmacist could be incorporated into the ward team.
5. To deal with the technical problems in the field of prescribing and administration of drugs which were referred to the committee by the Medical Staff Committee, the nursing staff, and others.

It was emphasised that this committee evolved "from below", and with appropriate membership and well defined lines of communication was likely to lead to executive action. It was separate from the Hospital Prescribing Committee which was primarily concerned with costing.

A sample of all prescription sheets over an 18 month period was examined in respect of various characteristics. This analysis was important in assessing many factors, including the number of lines required on the standard sheets and the percentage of adherence to the recommended principles. Some case sheets, mainly from surgical wards, had no prescription sheets. It was noted that negative reports (i.e., the absence of a prescription) should be included in the case notes.

Dr. Crooks concluded by outlining the benefits, actual and potential, revealed by the study so far.

Actual

1. Improved patient care.
2. Transcribing errors reduced.
3. Economy in nursing time.
4. Production of good drug records.

Potential

1. Allows the development of a recording system.
2. Leeds to incorporation of the pharmacist in the ward team.
3. Allows factual investigations to be made.

Miss H. B. Caie, Principal Nursing Tutor at Aberdeen Royal Infirmary, spoke from the point of view of the nursing staff. She noted that precept, example and continuity of teaching had affected the nurse's attitude to the administration of drugs to patients. The "explosion" of new preparations had made this work much more difficult; new and positive attitudes were essential. Under the old system the treatment chart was often badly written or illegible. This led to errors in transcribing. Abbreviations, ambiguous use of systems of weights and measures, and failure to order discontinuance of drugs were frequent and confusing.

There were obvious advantages to the introduction of a standard method for the prescription and administration of drugs throughout a hospital but this had to be done gradually to achieve full co-operation.

In a training school for doctors and nurses, there was continual movement of staff and it was important to see that information was available for newcomers. In Aberdeen, a memorandum for inclusion in the Nursing Services Committee Manual of Nursing Procedures was prepared by the Pharmaceutical Services Committee and a similar memorandum was available for new House Officers to whom the system was explained by the Medical Superintendent.

Under the old system there had been lack of records to show that a drug had been administered and by whom. It was therefore necessary to embark on a system of checking. Some ward sisters resisted this idea and felt that it was adding yet another burden to their already heavy schedule of work. It was thus important to show that the new system was effective and did not impose an additional load. The ward sister, clinical tutors and staff nurses in the professorial medical unit agreed to accept responsiblity for a pilot study. This was successful and led to some amendments in the prescription and the "checking" sheets. The exact time taken for the sequence of work involved in preparing and administering drugs and making the necessary records had been measured under both the old and the revised systems. It was anticipated that the new method would result in a significant saving of nurses' time and in fact the time was reduced from approximately 160 seconds to some 92 seconds per patient.

Miss Caie emphasised the benefits accruing from the revised method:—

1. Clear records were available to ward sisters.
2. Increased efficiency and sense of responsibility might be expected from nurses when the administration of drugs was no longer haphazard.
3. Time was saved.
4. Material for the analysis of toxicity was made available.

Mr. G. Calder, Group Pharmacist at Aberdeen Royal Infirmary, gave the pharmacist's point of view. He, too, emphasised the fact that the distribution of drugs in hospital had become a serious problem with the increase in the variety of drugs available. The distribution of drugs was the most arduous task performed by the pharmaceutical service in hospital and three basic methods were available.

1. Dependence on a complete ward stock.
2. Individual dispensing from the main pharmacy department.
3. A compromise between these two methods.

In Scotland the first method was commonly used. Prescriptions were interpreted and dispensed from the ward stock by nurses and stocks replenished by bulk requisition on the pharmacy. Supervision of the ward stock was carried out by periodic inspections by the pharmacist. This situation was not wholly satisfactory. It led to large quantities of drugs being hoarded and often having to be thrown away as unusable. Under this system it was paradoxical that a nurse in hospital was made responsible for certain aspects of drug handling for which she had minimal training, while the pharmacist after a four years' full-time university course in pharmacy was not required to take responsibility for those aspects in which he was expert.

The second method of complete individual dispensing from the main pharmacy was not relevant as there was no hospital of significant size which distributed drugs by this method only. In England and Wales the third, compromise, method was frequently used. A basic stock of "standard" drugs was held on the ward and other drugs obtained from the pharmacy department on prescription for individual patients. Under this system ward stocks still accumulated.

The system evolved in Aberdeen allowed a fresh approach to this aspect of drug handling in hospital whilst retaining the advantage of one document for the prescribing and administration of drugs. This approach could be achieved by the integration of the pharmacist into the ward team, a situation endorsed in the Grosset Report. The Aberdeen system is a compromise one but has a basic difference from previous compromises in that the pharmacist has full control of ward stocks. He provides drugs as per prescription sheet for a specified patient and does so at ward level.

The prescription sheet is the only "requisition" by ward staff for drugs. This basic procedure is supplemented by the provision of stand-by stocks which are held at ward level. The replenishment of these stocks is the responsibility of the pharmacist and not the nurse. The requisition for the required drugs is made by the pharmacist and is sent to the accounts department for the necessary costing. Using this procedure, one pharmacist, assisted by pharmacy technicians, could be responsible for 200 beds or more. The pharmacist was in the ward every weekday and a pharmacist was on call at nights and at weekends.

At each medicine round, the nurse administers the required drug to the patient from a pre-packed unit in her trolley and according to the instructions on the prescription sheet. She enters every administration of a drug and initials the recording sheet. The distribution of all drugs, except, at the present stage, those covered by the Dangerous Drugs Act, are handled in this way. A record of all drugs administered is ensured. It is possible that in future the prescription sheet, together with the properly completed recording sheet will be the only dangerous drug record at ward level and will thus eliminate the cumbersome D.D.A. register.

There was no doubt that under the Aberdeen system greater use was made of the pharmacist's expert knowledge by ward nursing and medical staff in the ward situation. The time taken by this method is not excessive and there is a real saving in nursing time. The overall increase in pharmacists' time has already been cut down and with better use of more technicians it is possible that this can be further improved.

Dr. R. Weir, of the Department of Social Medicine at the University of Aberdeen, spoke on the need to establish a system for monitoring the untoward effects of drug therapy. In Aberdeen, advantage could be taken of the fact that a new and accurate prescribing system had been introduced and also a recording sheet to determine whether or not the patient received a particular drug.

Dr. Weir expressed his belief that the place for information concerning drug prescribing and side effects was in clinical records and not in the creation of an additional and separate system, and stated that such information should not merely be stored but

used to monitor the effect of drugs and improve the quality of medical care offered to patients. It was clear, however, that successful drug monitoring could not be achieved without radical changes in the traditional system of medical records.

Dr. Weir reviewed the recording of information, the processing of data, and the possibilities of developing the system.

At the beginning of the study a hand-punched card system had been used to record the patients, their diseases, the drugs used, and any side effects. The aim was to find the best source of information and to see if it was consistent.

Two sources of information already existed, the clinical notes by the doctor and the notes maintained by the nursing staff. Two further sources were added. A special report form was attached to the prescription sheet on which medical staff were asked to record side effects and another form attached to the nursing kardex on which the senior nursing staff were asked to record side effects.

All diagnostic categories were examined and the incidence of "events" in relation to number of prescriptions suggested that the records were consistent, related directly to the patient's condition, and had not been completed at random. In two trials the nursing notes proved the most consistent source of information. It did not necessarily follow, however, that the most ill patients had the greatest number of side effects. As the survey developed, the quantity of data meant that hand punched cards were no longer suitable and machine cards were adopted though the same pattern was retained. Analysis of the recording sheets showed that at present patients received over 95% of the doses ordered. This trial showed that the method of recording drug adminstration was a practical proposition and that such records were of value in improving efficiency.

Consideration was now being given to a suitable form of presentation of the results to medical and nursing staff. A calculation of discrepancies in drug administration was only part of the information available from the data collected. It was important to provide what the ward staff required and to supply information capable of practical application. Initially such a report might contain:—

1. the period covered
2. the type of ward or unit
3. details of the patients covered by the report
4. any discrepancies between the ordered and administered doses
5. a comparison of the performance of the ward with that of all other participating wards.

Comparison of results should provide the stimulus for change.

Dr. Weir emphasised that successful drug monitoring in hospital would ultimately depend on good medical records. In this, the inclusion of the pharmacist in the ward team could increase the level of accuracy. The key to good records was in a uniform system of case summaries and the benefits of standardisation were exemplified in the prescription sheet now used in Aberdeen.

DISCUSSION

Opening the discussion, Professor Sir Edward Wayne accepted that the part of a medical audit which related to drugs was most important. From it the feedback of information might be expected to sharpen various aspects of performance and raise the general level of efficiency. The Aberdeen work on this subject was encouraging. Changes in this area of hospital work were most desirable but there might be insufficient realisation of the inadequacy of existing systems to enforce major changes as a matter of urgency. The problems in implementing a revised system were considerable and included emotional reactions which, however irrational, could prove a real obstacle.

The accumulation of surplus drugs at ward units was disturbing and symptomatic of many related problems. Professor Wayne noted that Hospital Prescribing Committees had tended in the past to be ineffective. Primarily related to costing, they contained little of scientific interest. It was possible, however, that they could initiate changes of a more significant kind if their remit could be broadened and their function extended.

In a lively discussion the following were the main points:—

1. **Resistance to change**
   An inbred conservatism was widespread in the Hospital Service and many reasons or excuses could readily be quoted to support the view that changes of any significance were difficult—if not impossible. Too often hospitals were composed of several autonomous units: these multiplied the difficulties of achieving broadly based, uniform and standardised systems such as were necessary for effective drug administration and recording. At the same time, some hospitals—as at Aberdeen—appeared able to obtain multiple consents to the introduction of new ideas.
2. **Points likely to increase the acceptability of a revised system**
   Aspects likely to appeal to medical and nursing staff were:—
   (*a*) that a problem exists of ensuring that the prescribed drug was administered to the right patient by the appropriate route in the correct dosage at the proper time;
   (*b*) the greatly increased complexity of the types and names of medicaments used;
   (*c*) the fact that nursing staff most concerned with drug administration circulate between ward units and should not have to learn a new system with each change;
   (*d*) the saving in nurses' time;
   (*e*) the value of pharmaceutical advice and participation at ward level.
3. **Committees**
   The limitations of Hospital Prescribing Committees were stressed by several speakers. The effectiveness of the Aberdeen "Pharmaceutical Services Committee" was indicative of the greater effectiveness of developments brought in from "below" rather than applied from "above". It was important to use a committee system which involved and interested both clinical and nursing staff. This could be assured only if their work had some effective outlet.
4. **Ward records and consultants' rounds**
   The fear expressed by one consultant that the recording system in use at Aberdeen would prove unsuitable where several consultants paid

visits to patients in the same ward at one time was not substantiated by experience elsewhere. While it was noted that additional holders could be used, good ward management should keep overlapping activities, e.g., drug rounds and doctor' rounds, to the minimum.

5. **Pharmaceutical staff**
Shortage of pharmacists and the question of salary levels were raised. There appeared to be a need for an improved career structure but it was stressed that more trained pharmacists might be attracted to hospital work if new and progressive concepts were introduced, and if the pharmacist was given a place in the ward team. There was a need to accept redistribution of pharmaceutical work and with the prepacking of certain items and a degree of automation, the use of pharmacy technicians could be increased. The opinion was expressed by chief pharmacists of large hospitals that the Aberdeen scheme would require an addition to the number of trained pharmacists. Recognising the Aberdeen experience that for many routine tasks pharmaceutical technicians required little trained supervision, it appeared that if existing vacancies for pharmacists could be filled a revised system could be undertaken. The implementation of a scheme which allowed direct liaison between the pharmacist and the ward staff had not only much to commend it but had been shown to be a practicable proposition.

6. **Other studies**
Representatives from one hospital explained how in their case the basic problems differed from those encountered in Aberdeen. The number of documents maintained at ward level were not excessive but the system of checking and counter-checking increased the work load of nurses almost to breaking point. In this case, studies had been undertaken on more conventional work-study lines and direct observations had led to the isolation of various factors and suggestions for possible changes in documentation, the number of drug rounds, the arrangement of the pharmacist's work, the design of a trolley etc. This work was complementary to the Aberdeen studies and the results would be published on completion.

7. **Recording of adverse effects**
The criteria to be used for recording adverse effects were recognised to be difficult to set. An unexplained "event" which might not be explicable in the light of the known pathology of the disease might fit into a pattern in hindsight when later knowledge had been acquired. It seemed important to make as full records of apparently irrelevant side effects as practicable. In future, the capacity to handle data may allow important linkages to be established. It was noted that the nursing staff in Aberdeen obtained satisfaction from the fact that their records were of the greatest value in this respect.

8. **The use of approved names**
The use of approved names was stressed. The provision of a card giving the names of commonly used items for reference, e.g. by House Officers, had been found helpful. It was noted that antibiotic discs and bulk supplies were often in "trade" terms and suggested that the National Health Service requirements were sufficiently large to warrant insistence on the use of official names. Again, it would be an advantage if approved names were simpler. An effective feedback system would be most useful to ward units in evaluating the nature and content of the prescribing pattern in that ward. It would highlight the extent to which non-formulary drugs were being used. This was important, not only in the context of individual hospitals or ward units, but also as it affected the work of general practitioners in relation to patients who had been admitted to or had attended hospital.

9. **Extended periods of drug administration**
It was agreed that suitable built-in checks against the prolongation of drug administration were necessary. Some system of automatic cancellation of drugs and, if necessary, their represcription, should be devised in the case of, for example, drugs ordered at an operating theatre. These should expire after a stated period, say, 24 hours. The difficulties resulting from the use of abbreviations were also noted.

10. **Drug hoarding**
Various experiences were quoted and illustrated. The inclusion of the pharmacist in the ward team ensured, amongst other advantages, improved liaison between ward units and the pharmacy, the likelihood of holding unnecessary reserve supplies at wards was increased. It was noted in this general connection that when supplies were more directly linked between the ward and the pharmacy the amount to be taken to wards by the pharmacist or pharmacy technicians was not heavy. The value of teaching student nurses in their second or third years about drugs, their storage and the signs of deterioration of stock was expressed but it was the general view that this alone would not achieve the desired results at ward level.

11. **Identification of patients**
While the identification of patients in bed caused little difficulty, it might be less easy in day rooms. It was noted that many patients were ambulant even in "acute" wards. It was agreed that this problem might require further consideration.

12. **Handing-over reports**
A fear was expressed that the collation of "kardex" records, nursing and prescription sheets might prove difficult when nurses were "handing over". This had not, however, been experienced at Aberdeen where handing over had created no problems.

13. **Recording in emergency situations, operating theatres and intensive care areas**
It was suggested that drugs prescribed or given as pre-medication or in the post-anaesthetic phase at operating theatres should form part of the anaesthetic record. In the Aberdeen experience this was not a large number of items. In sudden emergency situations few, if any, records could be kept. In intensive nursing care and intensive therapy areas separate drug sheets might be required.

14. **Points of Detail**
(*a*) **Emergency supplies.** A suitable, fre-

quently reviewed stock should be held at ward units.

(*b*) **Drugs for clinical trials.** The recording of such drugs was greatly facilitated where a pharmacist undertook a wider range of responsibilities at ward level.

(*c*) **Anticoagulants, insulin, etc.** A special chart was necessary for items frequently prescribed or varied. The doctor should prescribe the name of the item; dosages would be recorded on a separate sheet.

(*d*) **I.V. fluids, disinfectants, etc.** A topping-up system could be undertaken at ward units. This would be controlled by the pharmacist and might be undertaken by the pharmacy technician.

October, 1966.

LINKS BETWEEN HOSPITAL, LOCAL AUTHORITY AND GENERAL PRACTITIONER SERVICES

The importance and currency of the need for closer links between the various parts of the service requires no emphasis. This conference provided the opportunty for a useful and well-informed exchange of views from the three main branches.

Mr. E. U. E. Elliott-Binns, Under-Secretary, Scottish Home and Health Department and a member of the Council of Management of the Scottish Hospital Centre, took the Chair at a conference and discussion held at the Scottish Hospital Centre on Friday, 25th November 1966. The subject under consideration was links between hospital, local authority and general practitioner services.

In his opening remarks, **Mr. Elliott-Binns** considered the relationship between the subject of the conference and the wider question of legislation to combine the three branches of the Health Service. The climate of opinion seemed at present to favour such a change and, while no formal statement of Government policy had been made, a great deal of attention was being given to the subject in many circles; there was, for example, the recent interview* with the Minister of Health reported in *The Lancet* in which he referred to the possibility of experimental schemes of integration and the suggestion in the draft Charter for Hospital Doctors that an Area Health Board should be established for Wales. Similarly, discussions were taking place in Scotland with the General Medical Services Committee of the British Medical Association and on the Working Party on the Organisation of Medical Work under the Chairmanship of the Chief Medical Officer of the Scottish Home and Health Department. The difficulty about experiments, however, was that it took time to set them up, carry them out and assess the results; if there were to be experiments, it might be worth considering conducting them on a Scottish basis since Scotland's separate legislation might facilitate action.

In any event, it was clear that legislation could not be introduced in the immediate future and it would complicate the discussion on links between the three branches of the Service if the long-term fundamental aspect were also considered. The object of the conference, therefore, was to discuss what could be done within the present structure of the Service. Experience showed that a great deal had been done and it seemed clear that the more that could be achieved by voluntary co-operation, the easier it would be to devise legislation when the time came.

* *Lancet*, 1966, ii, 957. The Minister on administration of the N.H.S.

Dr. J. E. Miller, a general practitioner and a member of a Regional Hospital Board, spoke from the point of view of the family doctor. He noted the increased awareness of the need to study means of breaking down barriers dividing doctors from each other and the necessity to create better conditions for the care of patients and for the work of the family doctor. He stressed how the transition from theory to practice would be all too slow but considered that, with good will and a desire to secure progress, a restrictive adherence to tradition could be overcome.

As the leader of the "health team", the family doctor was the patient's first line of defence and, in addition, had a continuing responsibility for the medical needs of each individual under his care. He acted as assessor of the patient's problems and as co-ordinator of medical and social services available to meet both his needs and those of his family.

As regards links with local authority services, Dr. Miller indicated various facilities and types of qualified assistance now available, e.g., health visitors, nurses, midwives, mental welfare officers, and home helps. The attachment of some of these workers to groups of family doctors had been shown to be a practical proposition in most areas. It made efficient use of their services provided they were given suitable accommodation in which to work and, where appropriate, had access to the patient's records.

The value to the family doctor of having available the services of, for example, psychiatric social workers, rehabilitation and social caseworkers, and children's welfare officers was enormous. Health education occupied an important place in community care and could be undertaken jointly between the family doctor and the local authority. In Dr. Miller's view, the success of integration between the local authority and the family doctor depended to a large extent on the interest and good will of the Medical Officer of Health and the possibility of two-way representation on local health committees and local medical committees.

Before the establishment of the National Health Service, general practitioners had been part-time consultants in many specialties. The links between them and the consultants had been close and on an equal footing. This had now changed. Family doctors worked in greater isolation than previously and this was detrimental to the patient, the practitioner, and also to the hospital consultant. Dr. Miller felt that not only would the hospital service benefit from the attachment of general practitioners to hospitals but that family doctors would gain by the widening of their interest and the increasing opportunity to keep in touch with recent developments. For the younger family doctor a link with his training environment would maintain his special interests and enthusiasm; for the older practitioner, activity of the "refresher" type was essential. General practitioners could work acceptably in various hospital departments. It would also be valuable for hospital staff, e.g., registrars, to have a period of secondment to general practice.

Free access to diagnostic facilities at hospitals which could lead to more accurate and rapid diagnosis was essential in raising the standard of the family doctor's work. The position had improved in recent years, but out-patient departments at hospitals were still crowded and many patients were referred for routine investigations which could be undertaken under the family doctor's direction.

This would save the consultant's time and, in some cases, the duplication of investigations.

The establishment of general practitioner beds in hospitals was perhaps the best means of creating effective functional integration between the hospital and family practice. It gave practitioners access to hospital facilities, the opportunity to take an active part in hospital work, and provided direct and stimulating contact with specialist services. Many patients admitted to hospital were suffering from conditions within the scope of the general practitioner to treat and, in addition, it was of value to the patient that he should, where possible, remain the responsibility of a doctor who knew his background and had already obtained his confidence.

As regards Health Centres, Dr. Miller saw these as the focal point at which local authority, hospital, and family doctor services could meet. Here, under one roof, the services available for the care of the whole patient might be integrated. It was a testimonial to far-sighted local authorities, local medical committees, and Regional Hospital Boards that plans for some centres of this kind were now being promoted.

Dr. G. Riddell, Medical Officer of Health for Fife, spoke from the point of view of the local authority and noted that in his own area, and on a voluntary basis, there was a very real degree of integration of services for the elderly, the mentally handicapped, and in child psychiatry. There was also some liaison in services for the mentally ill and in obstetrics. While relationships were good, and confidence between individuals in different parts of the service was increasing, many barriers were inevitable in an overall structure in which related functions were the responsibility of different authorities.

He referred to the recent Command Paper ("Social Work and the Community"—Cmnd. 3065) and noted in particular that responsibility for the care and welfare of the elderly, the mentally and physically handicapped, and children in need of special care would be removed from the Medical Officer of Health and vested in a new non-medical administration. He regarded this as a retrograde step. It ignored previous experience and rested on the fallacious view that closely related medical and social problems could be divorced. He considered that implementation of the new proposals would nullify much good work that had already been done.

Dr. Riddell emphasised that the fundamental basis for co-operation was that each side should have confidence in the other; that they should honour their bargains and implement undertakings as fully as possible. In addition, he submitted that more effective evaluation of the service from the qualitative angle was necessary. Many aspects required study and assessment not only as regards the range and quality of the service and its economics, but the vital question to answer was whether any proposed changes would in fact provide a better service for the patient.

Dr. G. D. Forwell, Senior Administrative Medical Officer, Eastern Regional Hospital Board, spoke from the point of view of the hospital service. He said that, as had been the case through the ages, medical care still lagged behind scientific discovery and the problem of applying knowledge remained basically one of organisation. The role of the hospital had changed from that of "store house" to that of "power house". It was the cradle of many new techniques and hospitals were centres for the teaching of various professional and technical subjects, and for scientific research in addition to the cure of disease.

The aim of medical care was to ensure the proper performance of necessary medical functions. It was less concerned with who was performing them, and the future pattern of the kind of care likely to be required would render invalid the traditional boundaries between hospital and community, and between preventive and curative medicine. There were at present doctors in all three branches of the National Health Service. Their interacting roles were most important but it could not be assumed that what was good for the doctor was invariably good for the patient.

Dr. Forwell considered that it was too easy to ascribe the major problems of the health service to its tri-partite structure. Experience indicated that problems arose from the key position of the hospital in providing specialist services and containing a monopoly of technical services, the changing role of the general practitioner and the development of post-graduate education.

The medical staffing structure in hospitals was based on conditions pertaining to the major voluntary hospitals in the 1930s. It formalised this and exaggerated their effects. The system continued the monopoly of hospital beds by specialists and the introduction of a salaried service encouraged specialists to conduct most of their work from within the hospital. Dependence on specialised equipment meant that much of the work must be carried out in the hospital. Relatively few general practitioners had access to hospital beds, but general practice had continued to thrive in Britain in a period of intense specialisation largely because of the system of referral of patients. If the present system of general practice were to disappear and there was no adequate substitute, not only would more consultants be required but the whole referral system would break down and with it the hospital service as understood today.

It was now recognised that the undergraduate years were merely an introductory course for all doctors with the major responsibility for vocational training deferred to the post-graduate period. The full association of all doctors with hospital services would make possible a single post-graduate educational structure and this would do much to link the general practitioner and consultant services.

A large scale development of Health Centres in the early years of the National Health Service might have linked general practitioners and specialists into one group-practice team and removed to the Health Centre many of the functions now undertaken by hospital out-patient and diagnostic departments. At present, however, there was an enormous disparity in the number of staff at the disposal of the consultant and the general practitioner respectively. If hospital nurses, technicians and other professional personnel were averaged out among all consultants irrespective of specialty each consultant had the services of two full-time doctors, 35 full-time nurses, and four other full-time trained professional or technical persons, excluding secretarial and other supporting staff. Only five per cent of general

practitioner principals had an assistant or trainee and the average practitioner had the services of less than one ancillary worker.

At a time of shortage of facilities, duplication was intolerable. It was significant to note that the 1966 Review of the Hospital Plan for Scotland was explicit in stating that no new hospitals would be built without the fullest consideration of the possibility of associating with them the appropriate kinds and sizes of Health Centres to enable general practice and community services in their areas to be functionally integrated with the hospital service; and that further consideration would be given as opportunity offered to the integration of general practice and community services with the existing smaller hospitals.

Dr. Forwell concluded by noting the opportunities presented by the planning of new towns for positive steps to be taken to ensure the integration of the three services.

DISCUSSION

Councillor Mrs. Nealon, a member of a Regional Hospital Board, of an Executive Council, and of the Health Committee of a local authority, opened the discussion. She noted that the links between various parts of the service had improved over the years and agreed with Dr. Riddell that there was a danger under the terms of the current Command Paper ("Social Work and the Community") that what had been gained might be rendered ineffective or lost. It was important that on whatever level links between the parts of the service were to be established, the patient's requirements remained the central element of consideration. She considered that hospitals still created apprehension on the part of patients and that this might be mitigated if the family doctor had freer access to hospital beds. Integration required active co-operation between the branches of the service and she felt that members of Regional Hospital Boards should visit hospitals in their areas and meet members of Boards of Management more than they did, and that in their relationship with other branches of the National Health Service, the Regional Boards should adopt a less dictatorial attitude.

In the subsequent discussion the following points were raised.

1. **Grouping of resources**
   Several speakers referred to the need for closer linkage between the different branches of the service and the avoidance of duplicated effort. There was no unanimity, however, on the precise links which should be strengthened or forged. Some considered that general practices should be linked functionally and have the assistance of health visitors, etc., without the need to work from a single building. Some stressed the importance of the link between the general practitioner and the hospital, while others considered that the general practitioner could express his particular expertise to the best effect by a closer liaison with the local authority.
2. **The best use of existing resources**
   It appeared certain that there would be an unlimited demand for service from limited resources and that in this connection priorities would require to be set. In addition, if one aspect of the service was to be allocated a greater share of available resources, it must be demonstrable that this would in fact give a better use of these resources.
3. **The importance of good will**
   Several speakers mentioned the fact that to achieve an effective level of liaison, linkage, or even integration, it was necessary to have the good will of those concerned. What might be in the common interest could in fact be disadvantageous to the traditional interests of a particular group. If each group adopted a merely acquisitive attitude the results were unlikely to be successful.
4. **The effect of the Command Paper on "Social Work and the Community"**
   More than one speaker representing the local authority aspect expressed apprehension on the effect that the Command Paper would have in splitting what were closely related interests.
5. **Use of home nurses**
   The point was made that liaison between hospitals and the home nursing service was in many instances less efficient than it could be. It was anomalous that hospitals were not referring patients to the care of registered nurses at a time when hospital out-patient departments were over-crowded. It was wrong that this should happen at a time when in some areas trained nursing staff were being under used in relation to the range of work of which they were capable.

Further Discussion

The second part of the discussion was opened by Professor J. Walker, Department of Obstetrics and Gynaecology, Queen's College, Dundee, who stressed the need for a clear definition of the roles to be played by various groups within the National Health Service. Many of these were traditional and circumscribed, some were decided entirely on grounds of finance and led to patient care being assessed on a basis of items of service without sufficient regard to quality.

It was Professor Walker's view that local authorities should relinquish their work in clinical care. This was not because it was ineffectively done but because it led to a demonstrable duplication of service. He considered that in obstetrics at least patients were more apprehensive if not admitted to hospital.

It was essential that the programme in any Region should be comprehensive and tailored to fit the community needs. Traditional attitudes which were obstructive should be removed and hospital services should reach into the community. Duplication must be avoided and also situations where there was no single authority to take decisions. It was inefficient to have overlapping independent elements of service each stemming from a parent group which had independent financial allocations.

The following points arose in discussion.

1. **The development of closer relationships**
   It was noted that, particularly in obstetrics, a considerable degree of integration had already been achieved. This had emerged without formal legislative or administrative arrangements and the roles of the participating parties were gradually becoming more clearly defined. In

one area this liaison had been promoted by the building of a modern specialist hospital which had become the focal point of linkage with general practitioners and local authorities in relation to ante-natal work. It was considered that in this more integrated effort the general standard of ante-natal care had risen.

2. **The need for objective assessment**
The need for study was emphasised by more than one speaker. This referred not only to the activities traditionally undertaken by the three branches of the service but also to the review of the categories of staff undertaking particular duties. In the latter connection it was noted that with the wide range of para-medical assistance now available there was an opportunity to conserve and concentrate medical skills. Some form of "work study" on the range of "medical" work should be undertaken and preferrably by the profession.
In addition, it was suggested that further studies of the whole sequence of a patient's experience during an episode of illness should be undertaken. This would embrace the application of National Health Service facilities of all kinds from the time the patient reported to the general practitioner, the hospital out-patient department, the hospital, and after return to the general practitioner and the community.

3. **General practitioners and hospital appointments**
From the point of view of the general practitioner if was represented as good for their standard of professional practice to have hospital appointments. It was appreciated that if a general practitioner had had a significant gap since leaving a hospital environment some element of retraining was necessary. It was also noted that security of tenure was vital and the level of salary offered had to cover his loss of time and earnings. In addition, there should be a reasonable avenue of promotion for general practitioners within the hospital service.

4. **Psychiatric services**
It was noted that in the field of psychiatry there had been considerable advances in integration. Attitudes to psychiatric work which had at one time been isolated geographically and socially, had undergone a radical change and integration with and within the hospital services had been improved and would be further developed in the planning of new district general hospitals. Close links with family doctors and local health authority services were quoted and a useful degree of integration at the administrative level between mental health services, local health authorities, Regional Hospital Boards and Boards of Management in the discussion of common problems. The psychiatrist, being more mobile than most specialists, had every opportunity to take his specialty into the community.

5. **Nursing**
It was pointed out that a detailed examination of nurse training was being undertaken and recognised that much of the emphasis on traditions of the past had become outmoded. Many attitudes would require to be altered if nursing skills were to be correctly and effectively used. The number of married part-time nurses would be an increasing feature of the service and the use of nursing auxiliaries in many areas would be necessary.

HEALTH CENTRES

Dr. J. H. F. Brotherston, Chief Medical Officer, Scottish Home and Health Department, introduced the discussion on Health Centres. He noted that the search for means of linkage was being undertaken in an overall organisation not designed to promote it and which might even appear to prevent it. In the Health Centre there was a microcosm situation in which it might be possible to achieve more immediately the kinds of linkage required by the problem of trying to match the rising volume of demand—which would continue to rise—with resources of skills which would always be limited. This challenge faced every country but was more clearly demonstrable where there was a national acceptance of responsibility.

On this issue, it was important to provide health care in a fashion which made the most economic use of skills and manpower; which directed skills to the right place and maintained them at the highest level. If jobs did not offer an adequate challenge and stimulus, it was unlikely that the right people would be in the right positions, particularly in the present seller's market.

Consideration of the appropriate environment for the practice of health care involved not only the doctor's requirements but also the patient's point of view. Patients were now much more sophisticated and would become more so in future. They were not going to regard some of the environmental situations and circumstances of general practice as appropriate to modern medicine. It was important that as many investigations as possible should be done by having immediate access to the appropriate equipment. Patients associated this with good doctoring. To play a significant part, the Health Centre must in this context be thought of as an environment in which the right ingredients were represented. The Health Centre was not a gimmick, a kind of slogan, or a device for doing nothing at the present time. It was a place where the professional stimulus of the group might be created and this was the best way for the professional man to keep alive and be up to date.

"The group" in a Health Centre was multi-professional. As regards the medical element, both in group practice and in the Health Centre, it was important to recognise its variety. It was not simply a number of general practitioners but a group of doctors with particular skills and a variety of experience and background. To make this kind of work effective and to offer a suitable health service to the community, it was important to aggregate and not fragment the variety of skills available. To this must be added the contribution of nursing, social work, etc., and an analysis of job sharing would show where the work was being undertaken by the right people. It might be found by such analyses that the medical man's task, and, in particular, that of the general practitioner, could be very considerably shared out and leave him with more time for concentrated medical work which he was at present unable to undertake. It would allow him to follow his patients into the hospital. It would be in the

patient's interest not to expect a family doctor round every corner. A constellation of practice in a Health Centre made adequate planning of resources a reality and there were virtues in siting such a centre in direct relationship to a district hospital. This might require some increased travelling—or the provision of transport—for certain categories of patient.

The Health Centre in terms of the present administrative arrangements could only be a lively, dynamic element in a health care scheme if it represented a meeting point of all three parts of the service. It represented a contribution to the concept of an overall health plan which could permit those working in it to relate their activities directly and effectively to the needs of the community it served.

In discussion the principal points noted were:—

1. **The need for action**
   More than one speaker noted how, over the years, precept had been much more in evidence than practice. With so much at stake it was unreasonable to wait for legislative action aimed at an ideal situation before some positive action was taken. There was evidence that practical links between general practitioners and local authority services, with or without Health Centre premises, were becoming real and active in certain areas.
2. **Apparent extension of work and duplication of equipment**
   It was asked how, if general practitioners were now over-worked, they could undertake additional activities in Health Centres or in hospitals, and whether expensive equipment at Health Centres would be in addition to similar provision at hospitals. In reply, it was noted that general practitioners should have time available for additional "medical" work if non-medical activities which they now undertake could be satisfactorily devolved to supporting staff. As regards equipment, it was considered that this need not be elaborate either as regards radiology, physiotherapy or laboratory work and that its use would in fact ease the burden on hospital services.
3. **Existing experience**
   Doctors now working in Health Centres stressed not only the effectiveness of these units but also that sufficient lessons had been learned in practice to guide the design of new accommodation of this kind for any short term programme.
4. **Longer term planning**
   Throughout the conference there was an emphasis on the fact that the climate of opinion was changing in the direction of more integrated effort. It was recognised that legislative and administrative reorganisation would take time but this should not deter short term efforts by the three branches of the service. It was noted, however, that shortage of staff, buildings, and particularly finance, would restrict the administrative answer. The view was also expressed that the level of integration of effort between field-workers in the various branches of the service would be limited so long as administrative and financial sources were diversified.

November, 1966.

WARD UPGRADING II

At this conference the results of survey work by a team from the Scottish Hospital Centre were presented and a considered group of priorities stated. The work which formed the basis of the team's review will be incorporated in a report to be published in 1967.

Lady Baird took the Chair at the second conference on ward upgrading held at the Scottish Hospital Centre during 1966. Medical, nursing and architectural officers of the Scottish Hospital Centre presented the results of survey work undertaken since the previous meeting on 21st January 1966. The audience of approximately 55 was drawn mainly from the architectural, nursing, administrative, medical and engineering fields.

Dr. J. L. Graham introduced the subject and explained how the statistical survey undertaken by the Scottish Home and Health Department two years ago was being extended and brought up to date by the Scottish Hospital Centre. It had been suggested by the Department that to constitute "upgrading" in a ward unit, a minimum sum of £50 per bed must be spent. Without reference to an improvement in function or an increase in the necessary accommodation, this definition was now considered unsatisfactory. Most old ward units were quite inadequate for the needs of patients, nurses and doctors but might be structurally sound and would have to remain in service for many years.

Sufficient evidence had already been collected by the Scottish Hospital Centre to indicate that a very substantial amount of work remained to be done in this field. It was also noted that of the ward units already upgraded, many had only been renovated to a very simple level. Indeed, 321 out of 793 classified as "upgraded" under the "over £50" definition, included little more than the effect of extended maintenance. Details would be given in the report soon to be published by the Centre.

The basic criteria to be met in planning the upgrading of a ward unit were outlined as affecting patients, nurses, and doctors, and this approach was used by subsequent speakers to illustrate various findings from the survey and the recommendations made. It was considered that if the design facilitated the work of these groups it would also meet the requirements of others working in ward units.

Mr. A. R. H. Bott, senior architect, described ten upgraded ward units. These wards, representing the principal types now in use, had been studied in detail at various hospitals in Scotland. In each case diagrams of the ward unit before and after upgrading were shown to illustrate the main points of commendation, comment, or criticism. Stress was laid on the way different types of ward unit raised different problems and that, while a single revised plan could not apply to all types of ward, certain principles and points of detail had emerged from the survey and were generally applicable. These would be presented in some detail in the published report.

Among the points mentioned were the different ways in which bed orientation had been planned, the use in many cases of open bays as distinct from closed rooms, the apparent advantages but practical disadvantages of glazed inter-bay partitions, the location and planning of the sanitary accommodation, and, in particular, different approaches to the grouping of beds for the most seriously ill patients. The problems of lack of auditory and visual privacy were mentioned, the absence in some schemes of day space and treatment rooms, the need to group preparation and disposal facilities in relation to each other and to the beds they served, and the disadvantages encountered where ward corridors had been "cranked". In only one case had the patients' clothing storage been planned within the bed curtained area and in one instance only had the nurses' call system been extended to all areas used by patients, including the sanitary accommodation. It was also noted that while certain rooms had not been obtained in replanning a ward unit, e.g., a doctor's room, interview room, or treatment room, in some instances space had been given to rooms not directly contributing to the work of the ward, e.g., a room for a unit secretary, or other offices. In some cases there might have been advantages in the sacrifice of one or two beds.

Miss E. McNaught, nursing officer, noted that the studies had been undertaken with a view to the co-ordination of experience and the presentation of advice. Points emerging from the studies were summarised and illustrated with string diagrams of nurses journeys in seven wards.

1. **Privacy.** It was not practicable in new or upgraded wards to provide more than a proportion of beds in single rooms. It was important, however, not to include too many beds in one multi-bed room—the optimum number was four. Eight feet between bed centres was desirable, less than 7 ft. was unacceptable. Closed rooms, with a glazed strip in the corridor wall, had advantages over open bays which gave poor levels of auditory and visual privacy and the patient at the "corridor" was disturbed by passing traffic. Where a ward did not have ample width, it was better to leave the bed-heads to the window wall.
2. **Inter-bay partitions.** Glazing of these partitions resulted in loss of privacy and a degree of inconvenience. Bed lights tended to shine into the adjacent bed area and the screening of such beds prior to the performance of certain procedures was inconvenient.
3. **W.C. accommodation.** The importance of W.C. accommodation to patients was stressed. It was preferable not to group all W.Cs. in one bank. If two groups of W.Cs. were provided the "flexibility" of the ward was increased and, if the bed areas were in rooms and not bays, the ward unit could be used for both men and women patients. If it was impossible to subdivide the toilet accommodation it should be located in relation to the part of the ward most used by ambulant patients.
4. **Grouping of the more acutely ill patients.** This was important. Such patients should not be placed at the centre of the traffic density but there might have to be some compromise in this as observation could be an over-riding factor. The best location might be at the end of the ward away from the ward entrance, i.e., in a cul-de-sac. If, however, the other beds

were not enclosed, this might lead to difficulties, if, for example, a death occurred or distressed relatives had to traverse the whole length of the ward. Where open bays had to be accepted, the more acutely ill patients might preferably be located at the ward entrance and their beds enclosed. Consideration should also be given to the possibility of grouping ill patients in an intensive nursing care unit serving more than one ward unit.

5. **Nurse-working rooms.** The essential relationship between preparation (including linen) and disposal rooms was noted. Much time was spent unnecessarily by nurses collecting items from various parts of the ward to undertake a single procedure. The preparation room and the disposal room should be adjacent. Ideally a ward pantry should be part of the preparation area, but if central dish-washing was not available, it might be better in a more remote location due to noise. The sluice was part of the disposal area but should not be part of the same room.
6. **Reports, etc.** The nurses' station should be near the beds used for the more seriously ill patients. It was a base for nursing activity, and, while nurses seldom sat at it by day, it was more frequently used in this way at night. The records should be here and accessible to doctors, sister, and the other nursing staff. A station designed to accommodate all three users might be practicable.
7. **Patient's clothing.** It was important that, if possible, the patients' clothing should be kept in a wardrobe-locker within the curtained area of each bed. Direct access by patients was much appreciated and relieved the nursing staff of a considerable level of responsibility for patients' clothing. If not provided in this way, individual lockers should be provided within each ward unit.
8. **Day rooms.** The provision of day rooms was particularly important in relation to noisy activities, of which TV was the most in evidence. Ambulant patients might also be noisy and it was preferable to enclose day rooms and not provide them as open bays.
9. **Showers and bathrooms.** Showers were becoming increasingly acceptable to patients and took less space than a bathroom. One well-designed shower including a drying compartment was more valuable than several of cramped design. Adjustable height sprays were essential. Where the water temperature was difficult to regulate, patients were much less likely to use the shower. One free standing bath was necessary in each ward unit. It should not be boxed in so as to prevent the use of a patient lift or impede nurses assisting patients.
10. **Patient-nurse call system.** All areas used by patients should have an efficient nurse call system. An indicator panel at the nurses' station was of limited value by day. Call lights should be visible in the area within which nurses normally circulate and should lead to the origin of the call.
11. **Doctors' accommodation.** It was recognised that particularly the House Officer required a suitable room with visual and auditory privacy for writing and discussion with patients, their relatives, and with other members of the staff. For some of these purposes single rooms, treatment rooms, and interview rooms were suitable and, where possible, a separate doctors' room should be provided.
12. **Treatment rooms.** It was a mistake to suppose that a treatment room had to be planned at a central position in the ward. As it was mostly a much under-used room, it could be at either end of the unit. It ought to be available for other purposes than, e.g., surgical dressings.
13. **Ward stocks.** Ward stocks were often unnecessarily large. It was important before planning the storage accommodation to ensure that the supply and the collection arrangements were satisfactory. It was a waste of money to plan and provide excessive storage space at ward level when the basic requirement might be a more frequent delivery of supplies and collection of used material. The latter point was particularly important in relation to linen which frequently created an unpleasant atmosphere when the collection was only at, e.g., 24 hour intervals.
14. **Nurses' cloakroom.** While central changing accommodation for non-resident staff should be provided, cloak and W.C. facilities were required at ward level. These should not interfere with important relationships of beds to nurse-working areas.
15. **Nurse staffing.** It was noted that no additional nurses had been found necessary at any level of upgrading. Where the upgrading and grouping of the main nurse-working rooms had been effective, nurses were able to spend more time in the bed areas. It was clear that the ratio of nurse staffing was not affected so much by the work-load in the ward as the general availability of nurses and the training requirements for student and pupil nurses.

Mr. Bott continued the presentation by illustrating an upgraded ward designed by the study team. These pictures demonstrated features which met some of the detailed requirements listed above. He then showed "before and after" diagrams of three hypothetical upgrading schemes selected to illustrate three widely differing problems:

1. a short-term minimal upgrading proposed for an E.M.S. ward in temporary materials;
2. a Nightingale ward with turrets and of particularly awkward design;
3. a more comprehensive scheme involving a level of upgrading which would bring an E.M.S. ward to a much higher level of amenity and efficiency on a long term basis.

The first scheme achieved only the asbsolute essentials and accepted a high degree of compromise. The others provided progressively more of the features to which the study team attached significance.

Cost

Of the ten schemes illustrated the cost had ranged between £300 to over £900 per bed (at 1966 rates). With no system of cost control over upgrading work, standards varied widely and planning was substantially unguided and discretionary. It would be an advantage if some form of cost limit was devised and particularly if it related to set standards. For a short-term job the element of compromise with the ideal would be more evident, whereas on a

longer term basis the result should match the standards of new units as far as possible. It was understood that the Ministry of Health was suggesting a level of cost proportionate to the cost of new accommodation, i.e., 85% for a pre-1914 ward, and 60% for a post-1914 ward. These broad percentages, based on the age of the building's shell, appeared to require refinement as many variables were involved. Cost components such as the state of repair and maintenance of the building being upgraded and even simple differences such as wall thicknesses were relevant. External works and the distances from which main services had to be taken were variable and schemes were directly affected by the amount of space available for replanning. The latitude of choice was not always constant and planning decisions would have to be made in each case as to what items should be retained or replaced.

It was noted that the Centre's report on the study would include the cost analysis of some typical schemes by a quantity surveyor and it might prove possible to make recommendations on cost guidance in relation to definable functional elements.

Priorities

Before presenting the study team's main conclusions, Mr. Bott referred to certain basic considerations. It was assumed that all schemes would cover such fundamental requirements as shelter, heating, lighting and ventilation. Rigid adherence to the original number of beds was a limiting factor in many upgradings and it might well be to the advantage of the upgraded ward as a working unit that it should lose one or two beds. It was noted that from the ten wards illustrated only a total of four beds had been lost, yet in all except one there had been empty beds at the time of the survey. Again, it might be necessary before priorities were set to consider whether a phased operation should be envisaged with the more essential work being undertaken at the first stage.

The relative importance to be attached to the team's various recommendations had to be assessed in the light of the available funds and the limitations imposed by the existing building. In making this assessment there were four principles which the team regarded as vital to the design of an effective standard acute ward unit:—

First: the grouping of the most ill patients to facilitate supervision by nurses with ready access to nurse working areas.

Second: the grouping of the essential supply and disposal facilities. (In some cases this was more a matter of organisation than replanning.)

Third: the achievement of some privacy at the patient's bed area. (This included curtaining and the removal of noisy activities, e.g., to a day room.)

Fourth: the provision of acceptable W.C. and washing facilities.

DISCUSSION

The discussion was opened by Mr. T. R. Scott of Messrs. Keppie, Henderson and Partners, Architects, Glasgow . He indicated that in his opinion much ward upgrading would have to be done in the comparatively near future and while, for the architect, it did compare with the creation of new units, it did involve a most interesting and challenging series of problems. The survey work undertaken from the Scottish Hospital Centre would prove extremely useful and constructive criticism of what had already been undertaken was an essential element in providing a better level of upgrading in the large number of ward units that still required to be tackled.

In the subsequent discussion the following were the main points raised:—

1. **Reactions from patients and staff**
   In relation to the upgraded unit designed by the survey team, and reopened recently, the consultant in charge and the ward sister expressed satisfaction with the result. They reported that the patients appreciated the improved level of amenity, that the provision of call systems in W.Cs. and the facility of outward opening doors had already been commented on by patients with approval. Solid, as against glazed, partitions between bed bays were preferred and the nursing observation of patients was reported to be satisfactory.

   In addition to the provision of a sister's office cum duty room, a nurses' station, a unit secretary's office, and a small laboratory for the junior medical staff, a separate room or at least a desk for the house officer would have been an advantage. It was also suggested that where possible some additional space should be provided for the intensive nursing care beds and that this might be obtained by removing such patients' clothing lockers to another area of the ward; these would be less necessary while patients were at the most acute stage of their illness.
2. **Staff indoctrination**
   It was quoted from experience that when a new or upgraded unit was brought into use, the nursing staff had to be shown in some detail the methods envisaged by the planning group. This involved in particular the location of items and their grouping in, for example, a preparation room.
3. **Patient grouping and types of upgrading**
   Where ward units could be grouped under a single nursing charge, it might be possible to upgrade them in different ways so that, for example, one unit might be used as the "pre-discharge" ward. In addition, the grouping of wards would have an advantage in permitting the more seriously ill patients to be treated in more suitably planned accommodation in one of a group of two or three ward units.
4. **Supporting services**
   The need for adequate supporting services became apparent during the discussion. Upgrading would only be successful if it was assured of frequent delivery of supplies and collection of items for disposal or processing and if centralised services for food, linen, dish-washing, and sterile supplies were established.
5. **Teaching requirements**
   It was noted that at major teaching hospitals accommodation for teaching at ward level was essential. How this should be planned in relation to the teaching aids—especially television—now available, and accepting the need to expose patients to large groups of students

as little as possible, required careful consideration. It was noted that in one upgrading a difficulty had arisen because the Regional Hospital Board had not regarded teaching accommodation at ward level as a proper charge to the Board's funds.

6. **Corridor partitions and glazing**
The cleaning of extra partitions and the cost of incorporating glazing in them was raised but it was stressed that where upgrading was undertaken on a long term basis closed rooms should be provided. Patients did not rely entirely on call systems and required the reassurance given by their observation of nursing staff. Again, nursing staff had their work greatly facilitated when able to observe the patients in their care.

7. **Patient's clothing lockers**
It was the general view that patients should not be required to spend a large part of the day in day spaces, etc., in their night attire. They should be allowed and even encouraged to use their own clothes if out of bed for considerable periods. This could be greatly assisted, both from the point of view of the patient and the nurse, if the patient's wardrobe locker was included as near his bed area as possible and preferrably within the curtained area of his bed.

8. **Bed numbers**
The possibility of accepting any reduction in bed numbers was questioned in view of current bed occupancy rates. It was clear, however, that if additional rooms such as for interviews, house officers, teaching, or for unit secretaries were required, the necessary space might have to be obtained from within the overall area of the existing accommodation.

9. **Sluice and disposal rooms**
The need to enclose, and even to isolate, these rooms from the point of view of the risk of cross-infection was raised. It was noted, however, that the character of the disposal (dirty utility) and of the sluice room had changed materially in recent years. With efficient "bagging" of used materials, and, on the assumption that activities such as the washing of instruments would be undertaken elsewhere than at ward level, the risk was slight.

10. **Bedpan destructors**
While it was recognised that further development work on destructors and on the shape and type of bedpan shells was required, this form of disposal was preferable to the continued use of washers and "sterilisers". It was stressed that efficient links to the plumbing and drainage systems were necessary if blockages and breakdowns were to be prevented.

11. **The use of treatment rooms**
It was noted that treatment rooms could suitably be used for several purposes. At present such rooms were frequently in use for only a few hours out of 24. If well planned and adequately ventilated, a range of investigation procedures could be undertaken in them and if single rooms were not available, the treatment room could be used for the admission of patients at night. Activities such as nurse teaching at periods when the room was not required for other purposes should not render it unsuitable for its traditional role in relation to surgical dressings and minor operative procedures.

12. **The need for central direction**
More than one speaker referred to the fact that in recent years the large-scale upgrading of old wards had not been encouraged and, as a result, maintenance of such wards had been kept to a minimum. It now appeared that on financial grounds the replacement of many obsolete wards would not be a practical possibility in the foreseeable future and their upgrading would have to be considered as a matter of some urgency. On a national basis this would represent a programme of sufficient size and importance to justify a more clearly defined policy with central guidance and a realistic system of financial control.

In closing the discussion, it was noted that a full report of the survey, and the recommendations arising from it, would be published by the Scottish Hospital Centre in 1967.

December, 1966.

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